



## **Catalyst 3750 Switch Hardware Installation Guide**

February 2007

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## Preface

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### Audience

This guide is for the networking or computer technician responsible for installing the Catalyst 3750 switches. We assume that you are familiar with the concepts and terminology of Ethernet and local area networking.

### Purpose

This guide documents the hardware features of the Catalyst 3750 family of switches. It describes the physical and performance characteristics of each switch, explains how to install a switch, and provides troubleshooting information.

This guide does not describe system messages that you might receive or how to configure your switch. For more information, see the switch software configuration guide, the switch command reference, and the switch system message guide on the Cisco.com Product Documentation home page. For information about the standard Cisco IOS Release 12.1 or 12.2 commands, see the Cisco IOS documentation set from the Cisco.com home page by choosing **Support > Documentation > Product and Support Documentation/Cisco IOS Software**.

### Organization

This guide is organized into these chapters:

[Chapter 1, “Product Overview,”](#) is a physical and functional overview of the Catalyst 3750 family of switches. It describes the switch ports, the standards they support, and the switch LEDs.

[Chapter 2, “Switch Installation,”](#) contains the procedures on how to power on the switch; stack the switches; install the switch in a rack, on a wall, on a table, or shelf; and how to make port connections.

[Chapter 3, “Troubleshooting,”](#) describes how to identify and resolve some of the problems that might occur when you install the switch and how to identify the serial number when it is necessary to call technical support for help.

[Appendix A, “Technical Specifications,”](#) lists the physical and environmental specifications for the switches and the regulatory agency approvals.

[Appendix B, “Connector and Cable Specifications,”](#) describes the connectors, cables, and adapters that you use to connect the switch.

Appendix C, “Connecting to DC Power,” describes how to make DC power connections to the Catalyst 3750G-12S-SD switch.

Appendix D, “Configuring the Switch with the CLI-Based Setup Program,” provides a command-line interface (CLI)-based setup procedure for a standalone switch or a switch stack.

## Conventions

This document uses these conventions and symbols for notes, cautions, and warnings:



### Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



### Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



### Warning

#### IMPORTANT SAFETY INSTRUCTIONS

**This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.** Statement 1071

#### SAVE THESE INSTRUCTIONS

The safety warnings for this product are translated into several languages in the *Regulatory Compliance and Safety Information for the Catalyst 3750 Switch* that ships with the product. The EMC regulatory statements are also included in that guide.



# Related Publications

You can order printed copies of documents with a DOC-xxxxxx= number from the Cisco.com sites and from the telephone numbers listed in the URL referenced in the “[Obtaining Documentation, Obtaining Support, and Security Guidelines](#)” section on page x.

These documents provide complete information about the switch and are available from this Cisco.com site:

[http://www.cisco.com/en/US/products/hw/switches/ps5023/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/switches/ps5023/tsd_products_support_series_home.html)

- *Catalyst 3750 Switch Getting Started Guide* (order number DOC-7816663=)
- *Catalyst 3750G Integrated Wireless LAN Controller Getting Started Guide* (order number DOC-7817540=)
- *Regulatory Compliance and Safety Information for the Catalyst 3750 Switch* (order number DOC-7816664=)
- *Release Notes for the Catalyst 3750 Switch* (not orderable but available on Cisco.com)
- *Release Notes for the Catalyst 3750G Integrated Wireless LAN Controller Switch* (not orderable but available on Cisco.com)

**Note**

Before installing, configuring, or upgrading the switch, see the release notes on Cisco.com for the latest information.

- *Catalyst 3750 Switch Software Configuration Guide* (not orderable but available on Cisco.com)
- *Catalyst 3750 Switch Command Reference* (not orderable but available on Cisco.com)
- *Catalyst 3750, 3560, 3550, 2970, and 2960 Switch System Message Guide* (not orderable but available on Cisco.com)
- Device manager online help (available on the switch)
- *Getting Started with Cisco Network Assistant* (not orderable but available on Cisco.com)
- *Cisco Small Form-Factor Pluggable Modules Installation Notes* (order number DOC-7815160=)

These compatibility matrix documents are available from this Cisco.com site:

[http://www.cisco.com/en/US/products/hw/modules/ps5455/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html)

- *Cisco Gigabit Ethernet Transceiver Modules Compatibility Matrix* (not orderable but available on Cisco.com)
- *Cisco 100-Megabit Ethernet SFP Modules Compatibility Matrix* (not orderable but available on Cisco.com)
- *Cisco CWDM SFP Transceiver Compatibility Matrix* (not orderable but available on Cisco.com)
- *Cisco Small Form-Factor Pluggable Modules Compatibility Matrix* (not orderable but available on Cisco.com)
- *Compatibility Matrix for 1000BASE-T Small Form-Factor Pluggable Modules* (not orderable but available on Cisco.com)

# Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New* in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at this URL:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>



# CHAPTER 1

## Product Overview

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The Catalyst 3750 family of switches—also referred to as the *switches*—are stackable Ethernet switches to which you can connect devices like Cisco IP Phones, Cisco Wireless Access Points workstations, and other network devices such as servers, routers, and other switches. This chapter provides a functional overview of the Catalyst 3750 switch models. These topics are included:

- [Features, page 1-1](#)
- [Front Panel Description, page 1-3](#)
- [Rear Panel Description, page 1-22](#)
- [Management Options, page 1-27](#)

## Features

The switches can be deployed as backbone switches, aggregating 10BASE-T, 100BASE-TX, and 1000BASE-T Ethernet traffic from other network devices. See the switch software configuration guide for examples that show how you might deploy the switches in your network.

[Figure 1-2](#) through [Figure 1-13](#) show the Catalyst 3750 switches.

These are the switch features:

- Fast Ethernet Configurations
  - Catalyst 3750-24FS switch—24 100BASE-FX ports and 2 small form-factor pluggable (SFP) module slots
  - Catalyst 3750-24TS switch—24 10/100 Ethernet ports and 2 SFP module slots
  - Catalyst 3750-48TS switch—48 10/100 Ethernet ports and 4 SFP module slots
  - Catalyst 3750-24PS switch—24 10/100 Power over Ethernet (PoE) ports and 2 SFP module slots
  - Catalyst 3750-48PS switch—48 10/100 PoE ports and 4 SFP module slots
- Gigabit Ethernet Configurations
  - Catalyst 3750G-12S switch—12 SFP module slots
  - Catalyst 3750G-12S-SD switch—12 SFP module slots
  - Catalyst 3750G-24T switch—24 10/100/1000 Ethernet ports
  - Catalyst 3750G-24TS switch—1.5 rack units (RU)—24 10/100/1000 Ethernet ports and 4 SFP module slots

- Catalyst 3750G-24TS-1U switch—1 RU—24 10/100/1000 Ethernet ports and 4 SFP module slots
- Catalyst 3750G-48TS switch—48 10/100/1000 Ethernet ports and 4 SFP module slots
- Catalyst 3750G-24PS switch—24 10/100/1000 PoE ports and 4 SFP module slots
- Catalyst 3750G-48PS switch—48 10/100/1000 PoE ports and 4 SFP module slots
- Catalyst 3750G-24WS-S25 switch—24 10/100/1000 PoE ports, 2 SFP module slots, and an integrated Cisco wireless LAN controller supporting up to 25 Cisco Lightweight Access Points
- Catalyst 3750G-24WS-S50 switch—24 10/100/1000 PoE ports, 2 SFP module slots, and an integrated Cisco wireless LAN controller supporting up to 50 Cisco Lightweight Access Points
- 10-Gigabit Ethernet Configuration
  - Catalyst 3750G-16TD switch—16 10/100/1000 Ethernet ports and 1 10-Gigabit Ethernet XENPAK module slot




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**Note** The 10-Gigabit Ethernet XENPAK modules are referred to as 10-Gigabit Ethernet module ports in the software documentation.

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- The switches support these SFP modules:
  - 100BASE-FX multimode fiber (MMF)
  - 1000BASE-BX
  - 1000BASE-LX
  - 1000BASE-SX
  - 1000BASE-ZX
  - 1000BASE-T
  - Coarse wavelength-division multiplexing (CWDM)




---

**Note** When you install 1000BASE-T SFP modules in Catalyst 3750 switches, they can operate either at 10, 100, or 1000 Mb/s in full-duplex mode or at 10 or 100 Mb/s in half-duplex mode.

---

- For a list of the XENPAK modules that the Catalyst 3750G-16TD switch supports, see [Table B-2 on page B-4](#).
- Configuration
  - For 10/100 ports, autonegotiates the speed and duplex settings
  - For 10/100/1000 ports, autonegotiates the speed and supports only full-duplex mode




---

**Note** You can configure duplex mode to half, full, or autonegotiate on Gigabit Ethernet interfaces if the speed is set to 10 or 100 Mb/s. You cannot configure half-duplex mode on Gigabit Ethernet interfaces if the interface speed is 1000 Mb/s.

---

- The Catalyst 3750 switches support stacking. You can stack up to nine switches in a stack by cabling the StackWise ports. StackWise ports are not user-configurable.

- Switches are hot-swappable.
- Connection for an optional Cisco RPS 2300 or Cisco RPS 675 redundant power system (RPS) that operates on AC input and supplies backup DC power output to the Catalyst 3750 switches. The Catalyst 3750G-12S-SD switch does not support an RPS.

## Front Panel Description

These sections describe the Fast Ethernet and Gigabit Ethernet switches:

- [Fast Ethernet Front Panel Switches, page 1-3](#)
- [Gigabit Ethernet Switch Front Panel Descriptions, page 1-6](#)
- [10/100 and 10/100/1000 Ports, page 1-10](#)
- [SFP Module Slots, page 1-12](#)
- [XENPAK Module Slot \(Catalyst 3750G-16TD Switch\), page 1-13](#)
- [LEDs, page 1-13](#)

## Fast Ethernet Front Panel Switches

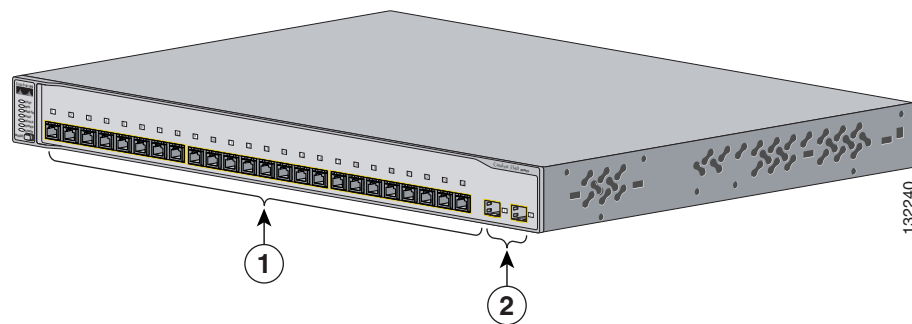
These sections describe the front panels for the Catalyst 3750 Fast Ethernet switches:

- [Catalyst 3750-24FS Switch Front Panel Description, page 1-3](#)
- [Catalyst 3750-24TS Switch Front Panel Description, page 1-4](#)
- [Catalyst 3750-48TS Switch Front Panel Description, page 1-4](#)
- [Catalyst 3750-24PS Switch Front Panel Description, page 1-5](#)
- [Catalyst 3750-48PS Switch Front Panel Description, page 1-5](#)

### Catalyst 3750-24FS Switch Front Panel Description

The 100BASE-FX ports on the Catalyst 3750-24FS switch are numbered 1 through 24, as shown in [Figure 1-1](#). The SFP modules slots are numbered 1 (left) and 2 (right).

**Figure 1-1** Catalyst 3750-24FS Front Panel

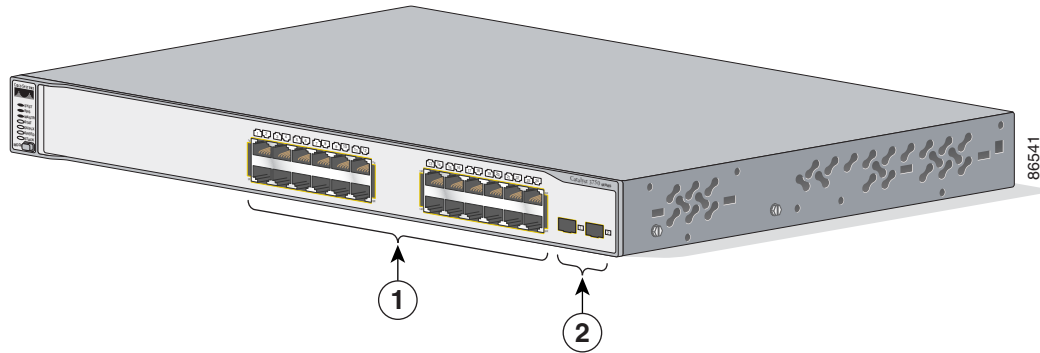


1	10/100 ports	2	SFP module slots
---	--------------	---	------------------

## Catalyst 3750-24TS Switch Front Panel Description

The 10/100 ports on the Catalyst 3750-24TS switch are numbered 1 through 24. The ports are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-2](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 1 (left) and 2 (right).

**Figure 1-2** Catalyst 3750-24TS Front Panel

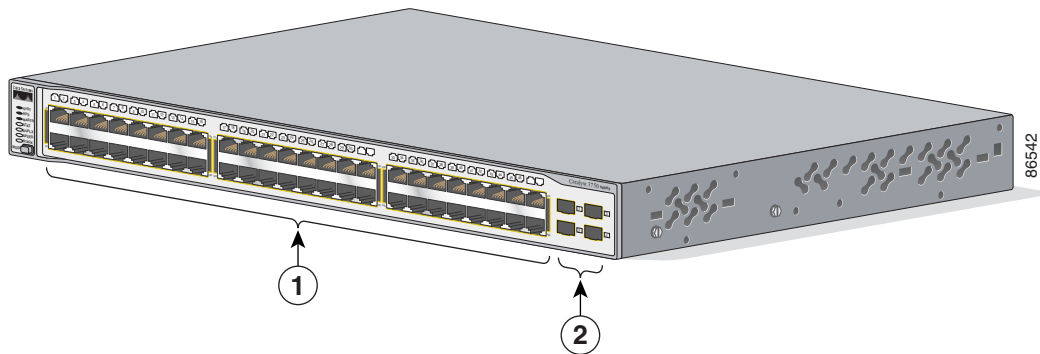


<b>1</b>	10/100 ports	<b>2</b>	SFP module slots
----------	--------------	----------	------------------

## Catalyst 3750-48TS Switch Front Panel Description

The 10/100 ports on the Catalyst 3750-48TS switch are numbered 1 through 48. The ports are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-3](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 1 to 4.

**Figure 1-3** Catalyst 3750-48TS Front Panel

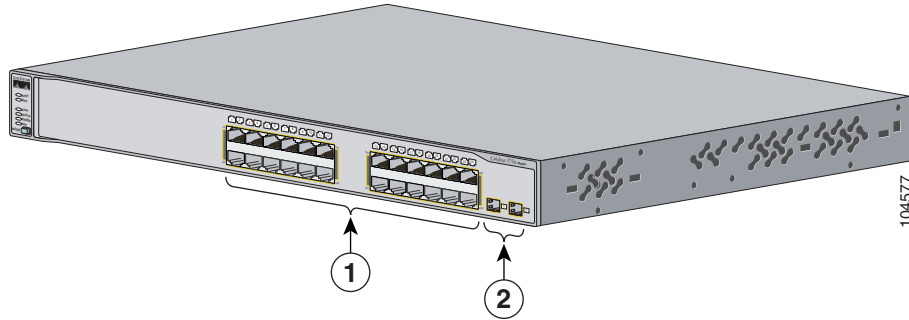


<b>1</b>	10/100 ports	<b>2</b>	SFP module slots
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## Catalyst 3750-24PS Switch Front Panel Description

The 10/100 PoE ports on the Catalyst 3750-24PS switch are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-4](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 1 and 2.

**Figure 1-4** Catalyst 3750-24PS Switch Front Panel

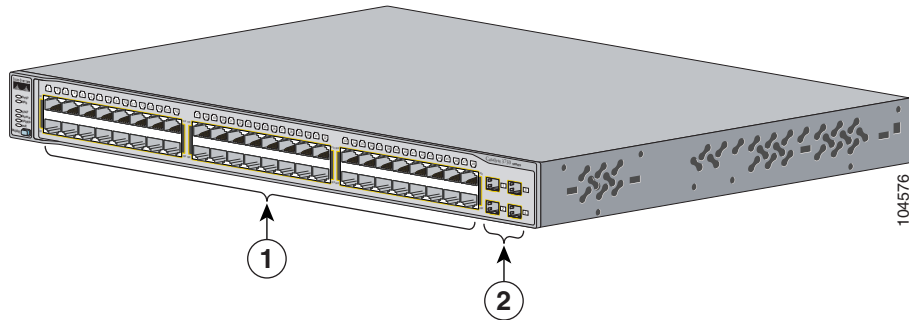


<b>1</b>	10/100 PoE ports	<b>2</b>	SFP module slots
----------	------------------	----------	------------------

## Catalyst 3750-48PS Switch Front Panel Description

The 10/100 PoE ports on the Catalyst 3750-48PS switch are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-5](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 1 to 4.

**Figure 1-5** Catalyst 3750-48PS Switch Front Panel



<b>1</b>	10/100 PoE ports	<b>2</b>	SFP module slots
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## Gigabit Ethernet Switch Front Panel Descriptions

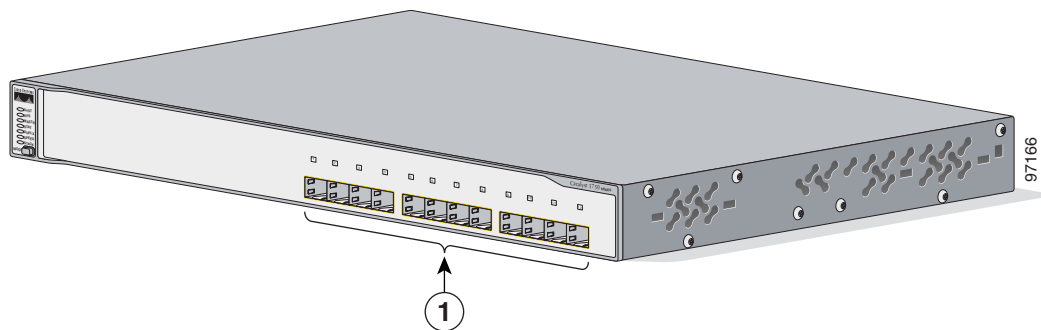
These sections describe the front panels for the Gigabit Ethernet switches:

- [Catalyst 3750G-12S and Catalyst 3750G-12S-SD Switches Front Panel Description, page 1-6](#)
- [Catalyst 3750-24T, 3750G-24TS, and 3750G-24TS-1U Switches Front Panel Descriptions, page 1-6](#)
- [Catalyst 3750G-48TS Switch Front Panel Description, page 1-8](#)
- [Catalyst 3750G-24PS Switch Front Panel Description, page 1-8](#)
- [Catalyst 3750G-48PS Switch Front Panel Description, page 1-9](#)
- [Catalyst 3750G-16TD Switch Front Panel Description, page 1-9](#)
- [Catalyst 3750G Integrated Wireless LAN Controller Switch Front Panel Description, page 1-10](#)

### Catalyst 3750G-12S and Catalyst 3750G-12S-SD Switches Front Panel Description

The SFP module slots on the Catalyst 3750G-12S and Catalyst C3750G-12S-SD switches are numbered 1 through 12. The slots are grouped in three sets of four, as shown in [Figure 1-6](#).

**Figure 1-6** Catalyst 3750G-12S and Catalyst 3750G-12S-SD Front Panel



<b>1</b>	SFP module slots
----------	------------------

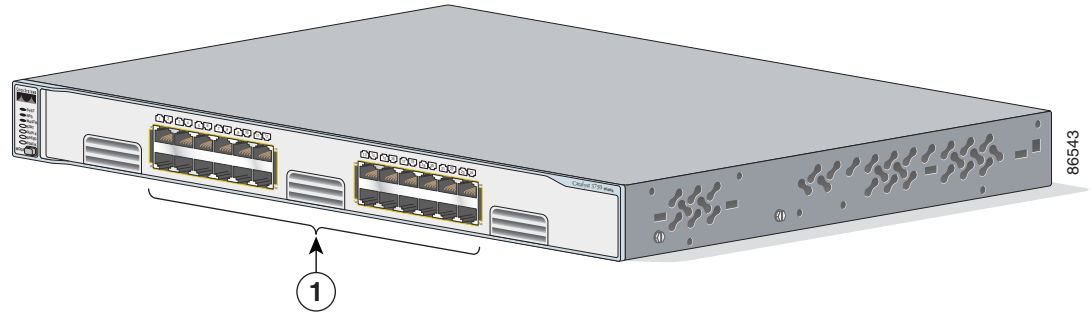
### Catalyst 3750-24T, 3750G-24TS, and 3750G-24TS-1U Switches Front Panel Descriptions

The 10/100/1000 ports on the Catalyst 3750G-24T, 3750G-24TS, and 3750G-24TS-1U switches are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-7](#), [Figure 1-8](#), and [Figure 1-9](#). Port 3 is above port 4, and so on.

The SFP module slots are numbered 25 to 28 on the [Catalyst 3750G-24TS Front Panel \(Figure 1-8\)](#) and on the [Catalyst 3750G-24TS-1U Front Panel \(Figure 1-9\)](#).

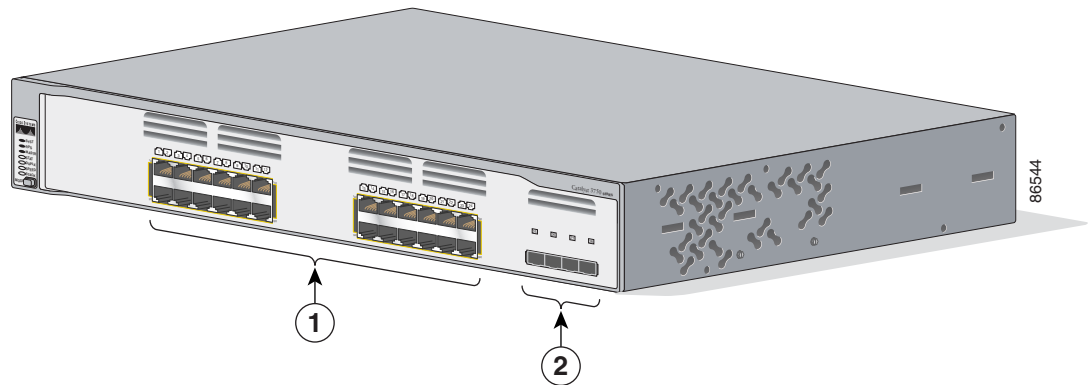


**Figure 1-7 Catalyst 3750G-24T Front Panel**



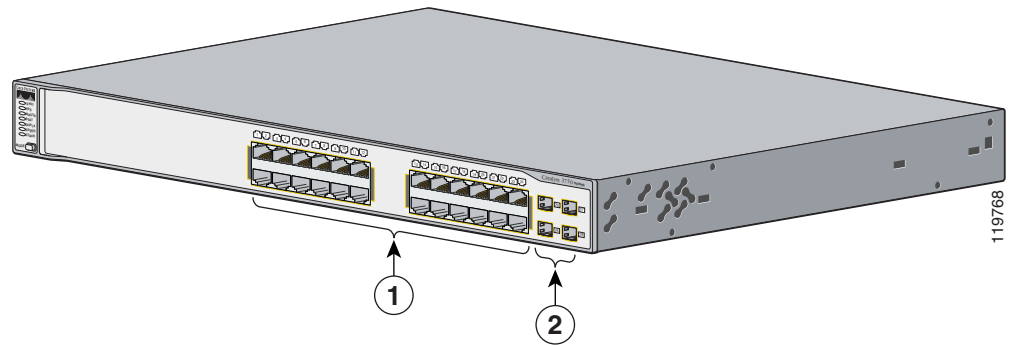
<b>1</b>	10/100/1000 ports
----------	-------------------

**Figure 1-8 Catalyst 3750G-24TS Front Panel**



<b>1</b>	10/100/1000 ports	<b>2</b>	SFP module slots
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**Figure 1-9 Catalyst 3750G-24TS-1U Front Panel**

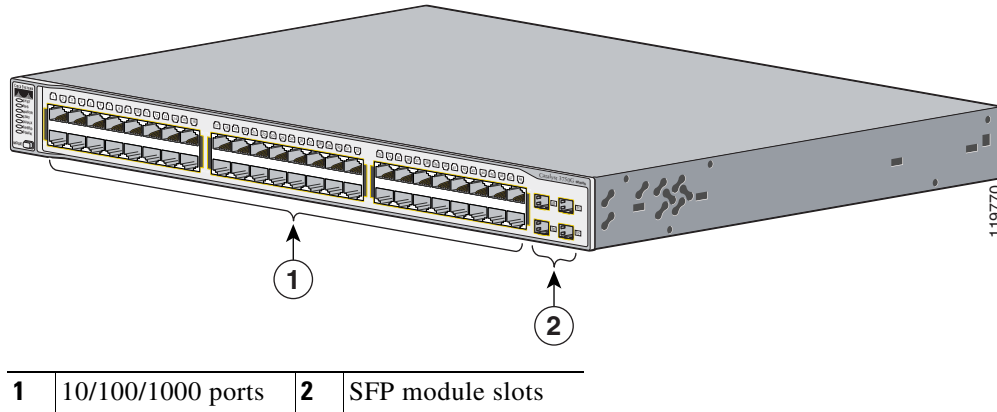


<b>1</b>	10/100/1000 ports	<b>2</b>	SFP module slots
----------	-------------------	----------	------------------

## Catalyst 3750G-48TS Switch Front Panel Description

The 10/100/1000 ports on the Catalyst 3750G-48TS switch are numbered 1 through 48 and grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-10](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 49 to 52.

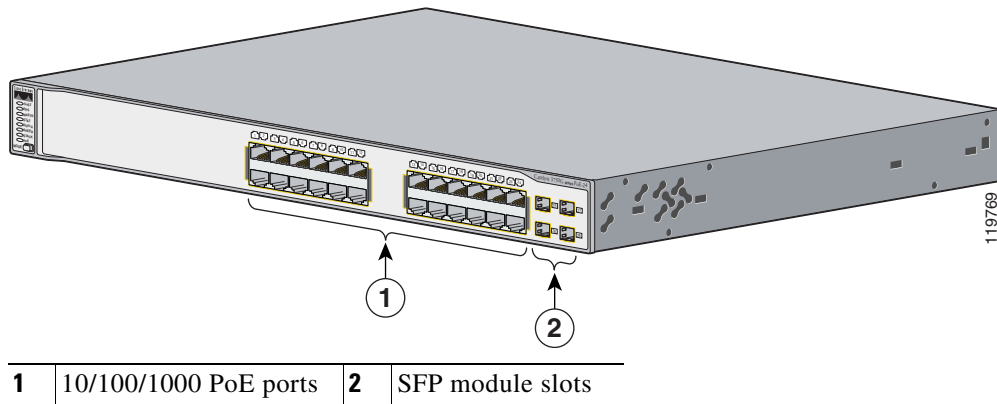
**Figure 1-10** Catalyst 3750G-48TS Front Panel



## Catalyst 3750G-24PS Switch Front Panel Description

The 10/100/1000 PoE ports on the Catalyst 3750G-24PS switch are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-11](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 25 to 28.

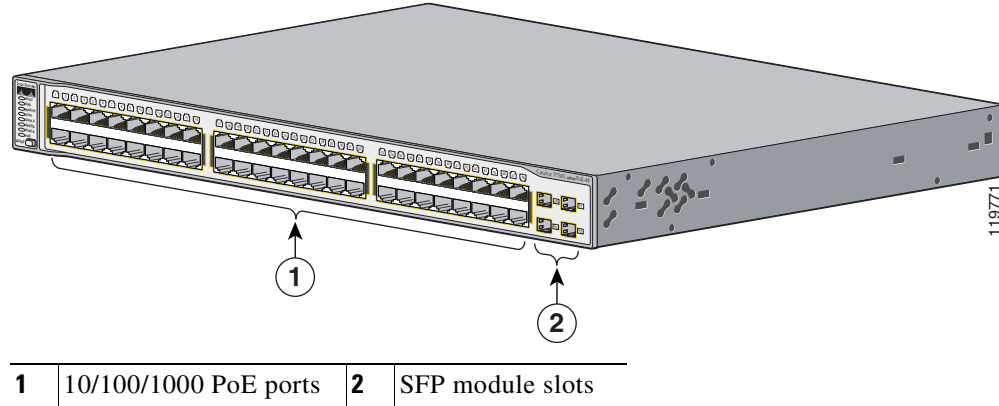
**Figure 1-11** Catalyst 3750G-24PS Switch Front Panel



## Catalyst 3750G-48PS Switch Front Panel Description

The 10/100/1000 PoE ports on the Catalyst 3750G-48PS switch are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-12](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 49 to 52.

**Figure 1-12** Catalyst 3750G-48PS Switch Front Panel



## Catalyst 3750G-16TD Switch Front Panel Description

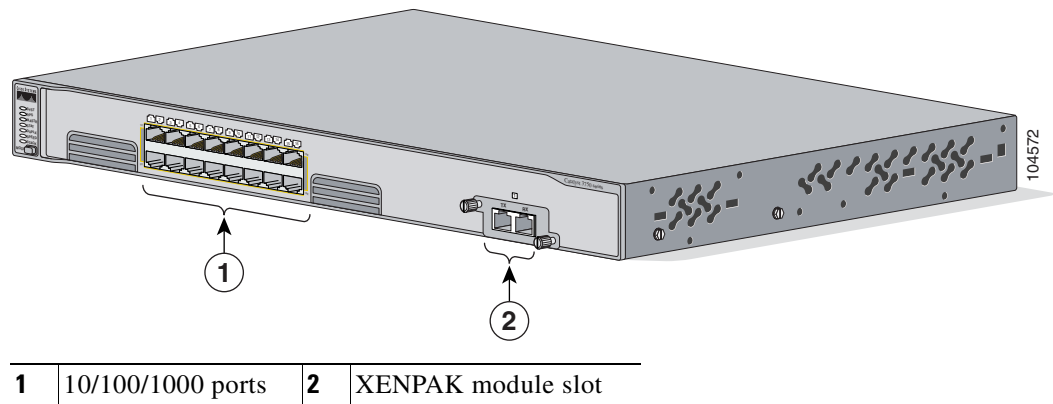
The 10/100/1000 ports on the Catalyst 3750G-16TD switch are grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-13](#). Port 3 is above port 4, and so on. The XENPAK module slot is numbered 1.



**Note**

The 10-Gigabit Ethernet XENPAK modules are referred to as 10-Gigabit Ethernet module ports in the software documentation.

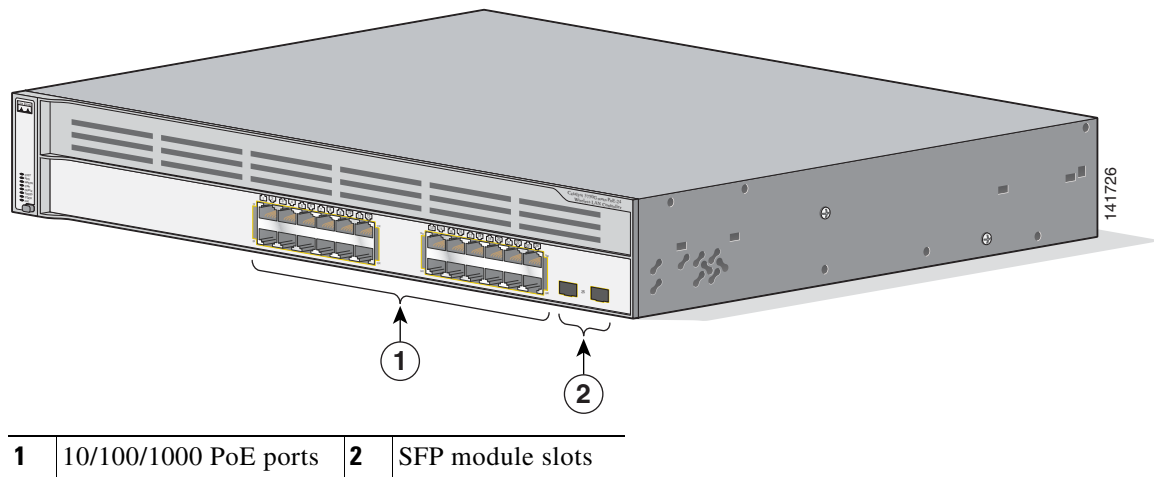
**Figure 1-13** Catalyst 3750G-16TD Switch Front Panel



## Catalyst 3750G Integrated Wireless LAN Controller Switch Front Panel Description

The Catalyst 3750G Integrated Wireless LAN Controller switches have an integrated Cisco wireless LAN controller. Depending on the switch model, the integrated wireless controller can support up to 25 or 50 Cisco Lightweight Access Points. The 10/100/1000 PoE ports on the Catalyst 3750G-24WS-S25 and the 3750G-24WS-S50 switch are numbered 1 through 24 and grouped in pairs. The first member of the pair (port 1) is above the second member (port 2), as shown in [Figure 1-14](#). Port 3 is above port 4, and so on. The SFP module slots are numbered 25 and 26. The switch also has two internal Gigabit Ethernet ports that connect the switch and the controller. The internal ports are numbered as ports 27 and 28 and are not visible on the front panel.

**Figure 1-14** Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switches Front Panel



## 10/100 and 10/100/1000 Ports

You can set the 10/100 ports on the Catalyst 3750 switches to operate in any combination of half duplex, full duplex, 10 Mb/s, or 100 Mb/s. You can set the 10/100/1000 ports to operate in 10 or 100 Mb/s in half or full duplex, or in 1000 Mb/s in full duplex.

You can set both the 10/100 and the 10/100/1000 ports for speed and duplex autonegotiation, in compliance with IEEE 802.3AB. (The default setting is autonegotiate.)



### Note

You can configure duplex mode to half, full, or autonegotiate on Gigabit Ethernet interfaces if the speed is set to 10 or 100 Mb/s. You cannot configure half-duplex mode on Gigabit Ethernet interfaces if the interface speed is 1000 Mb/s.

When set for autonegotiation, the port senses the speed and duplex settings of the attached device and advertises its own capabilities. If the connected device also supports autonegotiation, the switch port negotiates the best connection (the fastest line speed that both devices support and full-duplex transmission if the attached device supports it) and configures itself accordingly. In all cases, the attached device must be within 328 feet (100 meters).

**Warning**

**Voltages that present a shock hazard may exist on Power over Ethernet (PoE) circuits if interconnections are made using uninsulated exposed metal contacts, conductors, or terminals. Avoid using such interconnection methods, unless the exposed metal parts are located within a restricted access location and users and service people who are authorized within the restricted access location are made aware of the hazard. A restricted access area can be accessed only through the use of a special tool, lock and key or other means of security.** Statement 1072

The 10/100 ports on the Catalyst 3750-24PS and 3750-48PS switches and the 10/100/1000 ports on the Catalyst 3750G-24PS, 3750G-48PS, 3750G-24WS-S25, and 3750G-24WS-S50 switches provide PoE support for devices that are compliant with IEEE 802.3af. They also provide Cisco pre-standard PoE support for Cisco IP Phones and Cisco Aironet Access Points.

Each of the Catalyst 3750-24PS switch 10/100 ports or the Catalyst 3750G-24PS switch 10/100/1000 ports can deliver up to 15.4 W of PoE. On the Catalyst 3750-48PS or 3750G-48PS switches, any 24 of the 48 10/100 or 10/100/1000 ports can deliver 15.4 W of PoE, or any combination of the ports can deliver an average of 7.7 W of PoE at the same time, up to a maximum switch power output of 370 W.

Each of the Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 switch 10/100/1000 ports can deliver up to 15.4 W of PoE.

On a per-port basis, you can control whether a Catalyst 3750 PoE port automatically provides power when an IP phone or an access point is connected. The device manager and the CLI provide two PoE settings for each 10/100 or 10/100/1000 PoE port: Auto (the default) and Never.

- When you select Auto, the port only provides power if a valid powered device, such as an IEEE 802.3af-compliant powered device, a Cisco pre-standard IP phone, or a Cisco pre-standard Cisco access point, is connected to it.
- When you select Never, the port does not provide power even if a Cisco IP phone or an access point is connected to it. For information about configuring and monitoring PoE ports, see the device manager online help and the switch software configuration guide.

Cisco enhanced power negotiation allows some powered devices, such as the Cisco 7970G IP Phone, to operate in high-power mode on Catalyst 3750 PoE switches. The powered device and the switch negotiate through power-negotiation Cisco Discovery Protocol (CDP) messages for an agreed-upon power-consumption level. The negotiation allows a high-power Cisco powered device that consumes more than 7 W to operate at its highest power mode. The powered device first boots up in low-power mode, consumes less than 7 W, and negotiates to obtain enough power to operate in high-power mode. The device changes to high-power mode only when it receives confirmation from the switch. High-power devices can operate in low-power mode on switches that do not support power-negotiation CDP.

For information about configuring and monitoring PoE ports, see the device manager online help and the switch software configuration guide.

**Note**

You also can connect a Cisco IP Phone or Cisco Aironet Access Point to a Catalyst 3750 PoE switch 10/100 or 10/100/1000 port and to an AC power source for redundant power. The powered device might change to the AC power source as its primary power source when connected to it. In that case, the PoE port becomes the backup power source for the powered device.

If the primary source fails, the second power source becomes the primary power source to the powered device. During the power transfer, an IP Phone might reboot or reestablish link with the switch.

For information about Cisco IP Phones and Cisco Aironet Access Points, see the documentation that came with your IP phone or access point.

**Note**

100BASE-TX and 1000BASE-T traffic requires a Category 5 or later cable. 10BASE-T traffic can use Category 3 or Category 4 cables.

When you connect the switch to workstations, servers, routers, and Cisco IP Phones, be sure that the cable is a straight-through cable. When you connect the switch to switches or hubs, use a crossover cable. When using a straight-through or crossover cable for 1000BASE-T connections, be sure to use a twisted four-pair, Category 5 or later cable for proper operation. Pinouts for the cables are described in [Appendix A, “Technical Specifications.”](#)

You can use the **mdix auto** interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (auto-MDIX) feature. When you enable the auto-MDIX feature, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100, 10/100/1000, or 1000BASE-T SFP module port on the switch, no matter what type of device is on the other end of the connection.

The auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(18)SE or later. For releases between Cisco IOS Release 12.1(14)EA1 and 12.2(18)SE, the auto-MDIX feature is disabled by default. For configuration information for this feature, see the switch software configuration guide or the switch command reference.

Many legacy powered devices, including older Cisco IP phones and access points that do not fully support IEEE 802.3af, might not support PoE when connected to the switches by a crossover cable.

## 100BASE-FX Ports

The 100BASE-FX ports use 50/125- or 62.5/125-micron multimode fiber-optic cabling. In full-duplex mode, the cable length from a switch to an attached device cannot exceed 6,562 feet (2 kilometers).

The 100BASE-FX ports operate only at 100 Mb/s in either full- or half-duplex mode and do not support autonegotiation. The half-duplex mode is the default setting.

You can connect a 100BASE-FX port to an SC or ST port on a target device by using one of the MT-RJ fiber-optic patch cables that are listed in [Table B-1 on page B-3](#).

## SFP Module Slots

Catalyst 3750 switches with SFP module slots support these SFP modules:

- 100BASE-FX (MMF)
- 1000BASE-BX
- 1000BASE-LX
- 1000BASE-SX
- 1000BASE-ZX

- 1000BASE-T
- CWDM

For a list of the SFP modules that the switches support, see the Catalyst 3750 switch release notes.

## SFP Modules

The Catalyst 3750 switch uses Gigabit Ethernet SFP modules to establish connections to other devices. These transceiver modules are field-replaceable, providing the uplink interfaces when inserted in an SFP module slot. You can use the SFP modules for Gigabit uplink connections to other switches. You use fiber-optic cables with LC or MT-RJ connectors to connect to a fiber-optic SFP module. You use a Category 5 or higher cable with RJ-45 connectors to connect to a copper SFP module.

For more information about these SFP modules, see your SFP module documentation.

## XENPAK Module Slot (Catalyst 3750G-16TD Switch)

The Catalyst 3750G-16TD switch uses 10-Gigabit Ethernet XENPAK modules to establish connections to networks. You install the modules in the module slot in the switch front panel. See [Table B-2 on page B-4](#) for a list of XENPAK modules that the Catalyst 3750G-16TD switch supports.



### Note

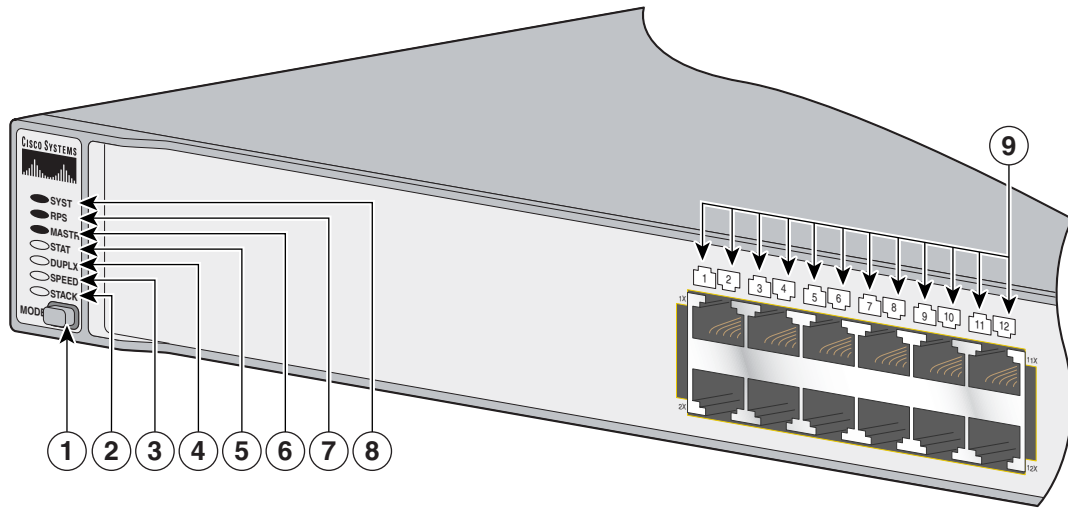
The 10-Gigabit Ethernet XENPAK modules are referred to as 10-Gigabit Ethernet module ports in the software documentation.

## LEDs

You can use the switch LEDs to monitor switch activity and its performance. [Figure 1-15](#), [Figure 1-16](#), and [Figure 1-17](#) show the switch LEDs and the Mode button that you use to select one of the port modes.

All LEDs are visible through the GUI management applications—the Network Assistant application for multiple switches and the device manager GUI for a single switch. The switch software configuration guide describes how to use the command-line interface (CLI) to configure and monitor individual switches and switch clusters.

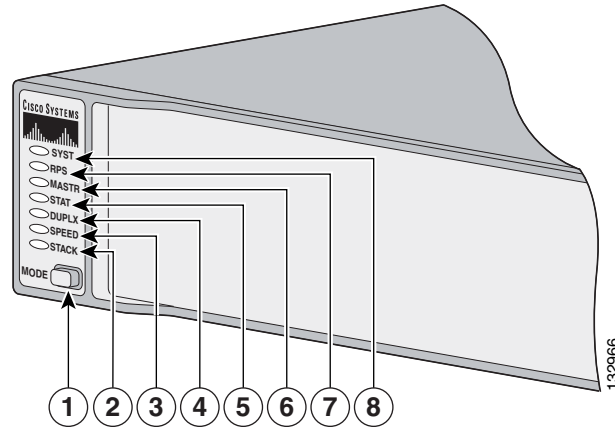
**Figure 1-15** Catalyst 3750-24TS, 3750G-24T, 3750G-16TD, 3750-48TS, 3750G-48TS, 3750G-24TS, and 3750G-24TS-1U Switch LEDs



86545

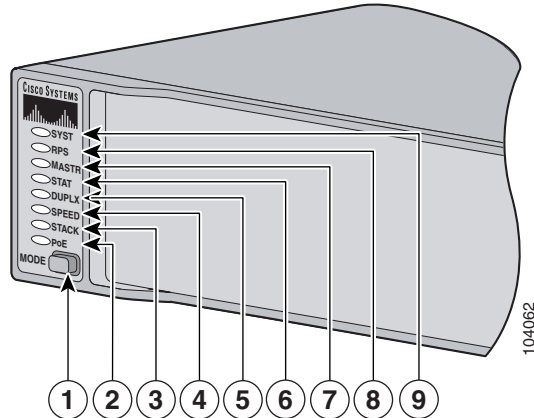
<b>1</b>	Mode button	<b>6</b>	Master LED
<b>2</b>	Stack LED	<b>7</b>	RPS LED
<b>3</b>	Speed LED	<b>8</b>	System LED
<b>4</b>	Duplex LED	<b>9</b>	Port LED
<b>5</b>	Status LED		



**Figure 1-16 Catalyst 3750G-12S and Catalyst 3750G-12S-SD Switch LEDs**

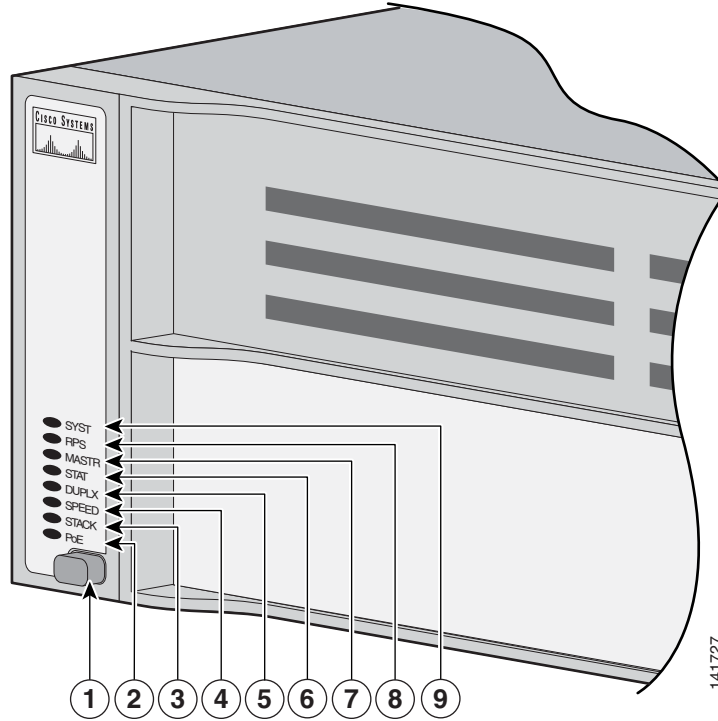
<b>1</b>	Mode button	<b>5</b>	Status LED
<b>2</b>	Stack LED	<b>6</b>	Master LED
<b>3</b>	Speed LED	<b>7</b>	RPS LED <sup>1</sup>
<b>4</b>	Duplex LED	<b>8</b>	System LED

1. The RPS LED is not used on the Catalyst 3750G-12S-SD switch.

**Figure 1-17 Catalyst 3750-24PS, 3750G-24PS, 3750-48PS, and 3750G-48PS Switch LEDs**

<b>1</b>	Mode button	<b>6</b>	Status LED
<b>2</b>	PoE LED	<b>7</b>	Master LED
<b>3</b>	Stack LED	<b>8</b>	RPS LED
<b>4</b>	Speed LED	<b>9</b>	System LED
<b>5</b>	Duplex LED		

**Figure 1-18** Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switch LEDs



<b>1</b>	Mode button	<b>6</b>	Status LED
<b>2</b>	PoE LED	<b>7</b>	Master LED
<b>3</b>	Stack LED	<b>8</b>	RPS LED
<b>4</b>	Speed LED	<b>9</b>	System LED
<b>5</b>	Duplex LED		

## System LED

The System LED shows whether the system is receiving power and is functioning properly. [Table 1-1](#) lists the LED colors and their meanings.

**Table 1-1 System LED**

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Amber	System is receiving power but is not functioning properly.
Alternating green and amber <sup>1</sup>	Wireless controller is not functioning properly.

1. Applies only to the Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 switches.

For information on the System LED colors during power-on self-test (POST), see the [“Powering On the Switch and Running POST”](#) section on page 2-7.

## RPS LED

The RPS LED shows the RPS status. [Table 1-2](#) lists the LED colors and their meanings. The RPS LED is not used on the Catalyst 3750G-12S-SD switch.

**Table 1-2 RPS LED**

Color	RPS Status
Off	RPS is off or not properly connected.
Green	RPS is connected and ready to provide back-up power, if required.
Flashing green	RPS is connected but is unavailable because it is providing power to another device (redundancy has been allocated to a neighboring device).
Amber	The RPS is in standby mode or in a fault condition. Press the Standby/Active button on the RPS, and the LED should turn green. If it does not, the RPS fan could have failed. Contact Cisco Systems.
Flashing amber	The internal power supply in a switch has failed, and the RPS is providing power to the switch (redundancy has been allocated to this device).

For more information about the Cisco RPS 2300, see the *Cisco Redundant Power System 2300 Hardware Installation Guide*. For more information about the Cisco RPS 675, see the *Cisco RPS 675 Redundant Power System Hardware Installation Guide*. These guides are available on Cisco.com.

## Master LED

The Master LED shows the stack master status. [Table 1-2](#) lists the LED colors and their meanings.

**Table 1-3** Master LED

Port Mode	Description
Off	Switch is not the stack master.
Green	Switch is the stack master or a standalone switch.
Amber	An error occurred when the switch was selecting the stack master switch or a stack error.

## Port LEDs and Modes

Each RJ-45 port, SFP module slot, and XENPAK module slot has a port LED. These port LEDs, as a group or individually, display information about the switch and about the individual ports. The port modes determine the type of information that the port LEDs display. [Table 1-4](#) lists the mode LEDs and their associated port modes and meanings.

**Table 1-4** Port Mode LEDs

Mode LED	Port Mode	Description
STAT	Port status	The port status. This is the default mode.
DUPLX	Port duplex mode	The port duplex mode: full duplex or half duplex. <b>Note</b> The 10/100/1000 ports operate only in full-duplex mode.
SPEED	Port speed	The port operating speed: 10, 100, or 1000 Mb/s.
STACK	Stack member status	The stack member status.
	StackWise port status	The StackWise port status. See the <a href="#">“Stack LED” section on page 1-20</a> for more information.
PoE	10/100 and 10/100/1000 PoE port power	The PoE status.


[Table 1-5](#) lists the PoE LED colors and their meanings.

**Table 1-5** PoE Mode LED

Color	PoE Status
Off	PoE mode is not selected. None of the 10/100 or 10/100/1000 ports have been denied power or are in a fault condition.
Green	PoE mode is selected, and the PoE status is shown on the port LEDs.
Blinking amber	PoE mode is not selected. At least one of the 10/100 or 10/100/1000 ports has been denied power, or at least one of the 10/100 or 10/100/1000 ports has a PoE fault.

To select or change a mode, press the Mode button until the desired mode is highlighted. When you change port modes, the meanings of the port LED colors also change. Table 1-6 explains how to interpret the port LED colors in different port modes.

**Table 1-6** *Meaning of LED Colors in Different Modes on the Switch*

Port Mode	Port LED Color	Meaning
PoE <sup>1</sup>	Off	PoE is off. If the powered device is receiving power from an AC power source, the port LED is off even if the powered device is connected to the switch port.
	Green	PoE is on. The port LED is green only when the switch port is providing power.
	Alternating green and amber	PoE is denied because providing power to the powered device will exceed the 370 W switch power capacity.
	Blinking amber	PoE is off due to a fault.  <div style="display: flex; align-items: center;">  <p><b>Caution</b> PoE faults are caused when noncompliant cabling or powered devices are connected to a PoE port. Only standard-compliant cabling can be used to connect Cisco pre-standard IP Phones and wireless access points or IEEE 802.3af-compliant devices to PoE ports. A cable or device that causes a PoE fault must be removed from the network.</p> </div>
	Amber	PoE for the port has been disabled. <b>Note</b> PoE is enabled by default.
STAT (port status)	Off	No link, or port was administratively shut down.
	Green	Link present.
	Flashing green	Activity. Port is sending or receiving data.
	Alternating green-amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, cyclic redundancy check (CRC) errors, and alignment and jabber errors are monitored for a link-fault indication.
	Amber	Port is blocked by Spanning Tree Protocol (STP) and is not forwarding data. <b>Note</b> After a port is reconfigured, the port LED can remain amber for up to 30 seconds as STP checks the switch for possible loops.
	Flashing amber	Port is blocked by STP and is sending and receiving packets.
DUPLX (duplex)	Off	Port is operating in half duplex.
	Green	Port is operating in full duplex.

**Table 1-6** *Meaning of LED Colors in Different Modes on the Switch (continued)*

Port Mode	Port LED Color	Meaning
SPEED	<b>10/100 and 10/100/1000 ports</b>	
	Off	Port is operating at 10 Mb/s.
	Green	Port is operating at 100 Mb/s.
	Flashing green	Port is operating at 1000 Mb/s.
	<b>SFP module ports</b>	
	Off	Port is operating at 10 Mb/s.
	Green	Port is operating at 100 Mb/s.
	Flashing green	Port is operating at 1000 Mb/s.
		<b>Note</b> When installed in Catalyst 3750 switches, 1000BASE-T SFP modules can operate at 10, 100, or 1000 Mb/s in full-duplex mode or at 10 or 100 Mb/s in half-duplex mode.
	<b>XENPAK port</b>	
Off	Port is not operating.	
Flashing green	Port is operating at up to 10 Gb/s.	
STACK (stack member)	Off	No stack member corresponding to that member number.
	Flashing green	Stack member number.
	Green	Member numbers of other stack member switches.

1. The PoE LED is only on the Catalyst 3750-24PS, 3750G-24PS, 3750-48PS, 3750G-48PS, 3750G-24WS-S25 and 3750G-24WS-S50 switches.

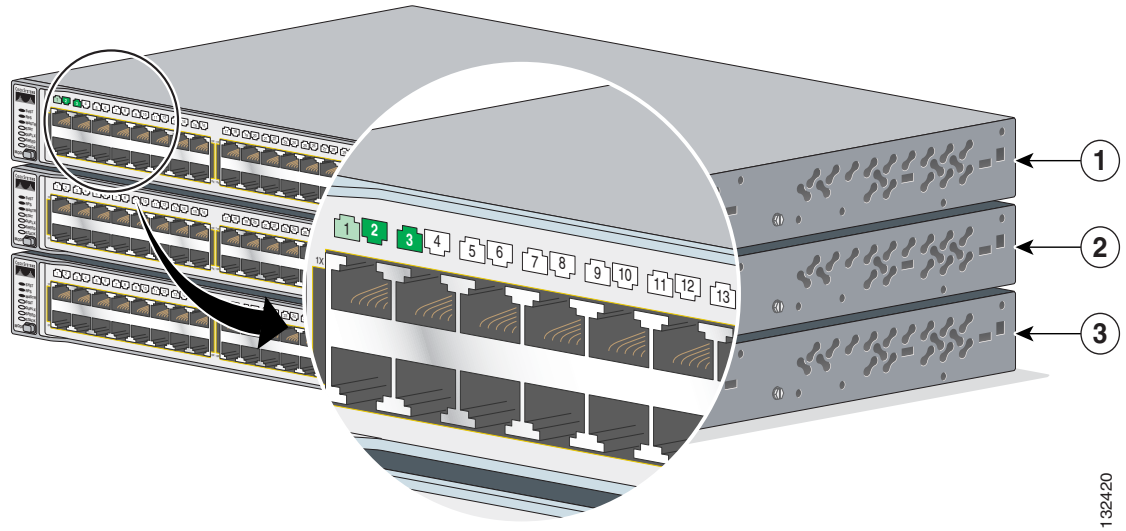
If your switches are stacked and you press the Mode button on any one of the switches in the stack, all the switches in the stack change to display the same selected mode. For example, if you press the mode button on the stack master to display SPEED, all the other switches in the stack also display SPEED.

The PoE LED is on the Catalyst 3750-24PS, 3750G-24PS, 3750-48PS, 3750G-48PS, 3750G-24WS-S25 and 3750G-24WS-S50 switches. Even if PoE mode is not selected on the switches, this LED still shows PoE problems if they are detected. The Catalyst 3750G-S-SD does not have a PoE LED.

## Stack LED

The stack LED shows the sequence of member switches in a stack. Up to nine switches can be members of a stack. The first nine port LEDs show the member number of a switch in a stack. [Figure 1-19](#) shows the LEDs on the first switch, which is stack member number 1. For example, if you press the Mode button and select Stack, the LED for port 1 flashes green. The LEDs for port 2 and 3 are solid green, as these represent the member numbers of other switches in the stack. The other port LEDs are off because there are no more members in the stack.

Figure 1-19 Stack LED



1	Stack member 1	3	Stack member 3
2	Stack member 2		

When you select the Stack LED, the representative Stack LEDs are green when the StackWise ports (on the switch rear panel) are up, and the representative Stack LEDs are amber when the ports are down:

- SFP module port LEDs 1 and 2 on the Catalyst 3750-24TS switch show the status for StackWise ports 1 and 2, respectively.
- SFP module port LEDs 3 and 4 on the Catalyst 3750-48TS switch show the status for StackWise ports 1 and 2, respectively.
- SFP module port LEDs 51 and 52 on the Catalyst 3750G-48TS and 3750G-48PS switches show the status for StackWise ports 1 and 2, respectively.
- SFP module port LEDs 27 and 28 on the Catalyst 3750G-24TS, 3750G-24TS-1U, and 3750G-24PS switches show the status for StackWise ports 1 and 2, respectively.
- The 10/100/1000 port LEDs 23 and 24 on the Catalyst 3750G-24T switch show the status for StackWise ports 1 and 2, respectively.
- SFP module port LEDs 11 and 12 on the Catalyst 3750G-12S and the Catalyst 3750G-12S-SD switch show the status for StackWise ports 1 and 2, respectively.
- SFP module port LEDs 25 and 26 on the Catalyst 3750G-24WS-S25, and 3750G-24WS-S50 switches show the status for StackWise ports 1 and 2, respectively.

**Note**

If the port LEDs are green on all the switches in the stack, the stack is operating at full bandwidth (32 Gb/s). If any of the port LEDs are not green, the stack is not operating at full bandwidth.

# Rear Panel Description

These sections describe the rear panels for the Catalyst 3750 Fast Ethernet switches:

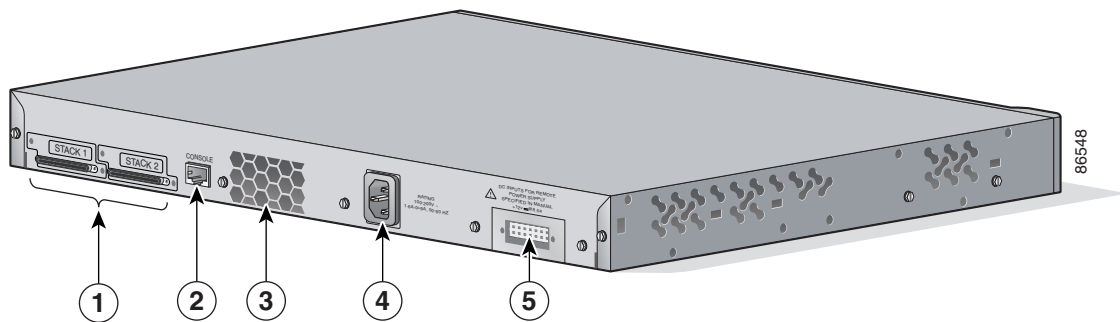
- [Rear Panel Overview, page 1-22](#)
- [StackWise Ports, page 1-25](#)
- [Power Connectors, page 1-25](#)
- [Console Port, page 1-27](#)

## Rear Panel Overview

The switch rear panels have an AC or DC power connector, an RPS connector (except for the Catalyst 3750G-12S-SD switch), an RJ-45 console port, two StackWise ports, and a service port (only on the Catalyst 3750G Integrated Wireless LAN Controller switches). The switch rear panels are shown in these figures:

- [Catalyst 3750-24TS, 3750G-24T, 3750G-12S, 3750G-16TD, and 3750-48TS Switches Rear Panel, Figure 1-20](#)
- [Catalyst 3750G-24TS Switch Rear Panel, Figure 1-21](#)
- [Catalyst 3750G-12S-SD Switch Rear Panel, Figure 1-22](#)
- [Catalyst 3750-24FS Switch Rear Panel, Figure 1-23](#)
- [Catalyst 3750-24PS and Catalyst 3750-48PS Switches Rear Panel, Figure 1-24](#)
- [Catalyst 3750G-24PS, 3750G-24TS-1U, 3750G-48PS, and 3750G-48TS Switches Rear Panel, Figure 1-25](#)
- [Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switches Rear Panel, Figure 1-26](#)

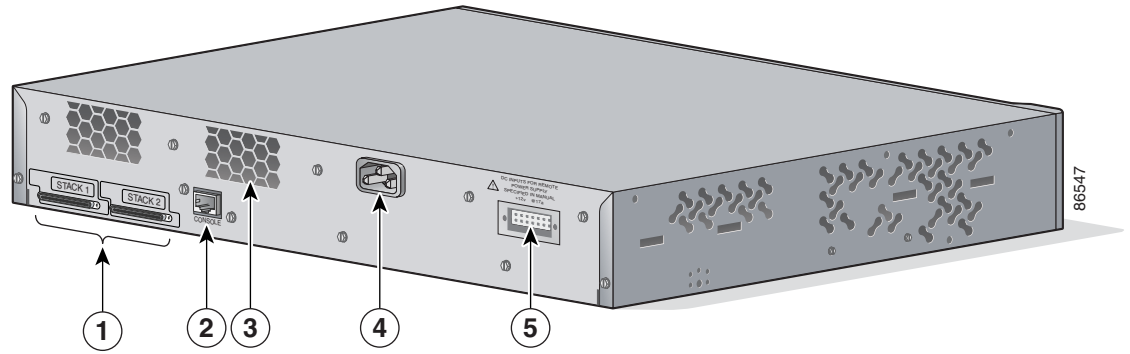
**Figure 1-20** Catalyst 3750-24TS, 3750G-24T, 3750G-12S, 3750G-16TD, and 3750-48TS Switches Rear Panel



1	StackWise ports	4	AC power connector
2	RJ-45 console port	5	RPS connector
3	Fan exhaust		

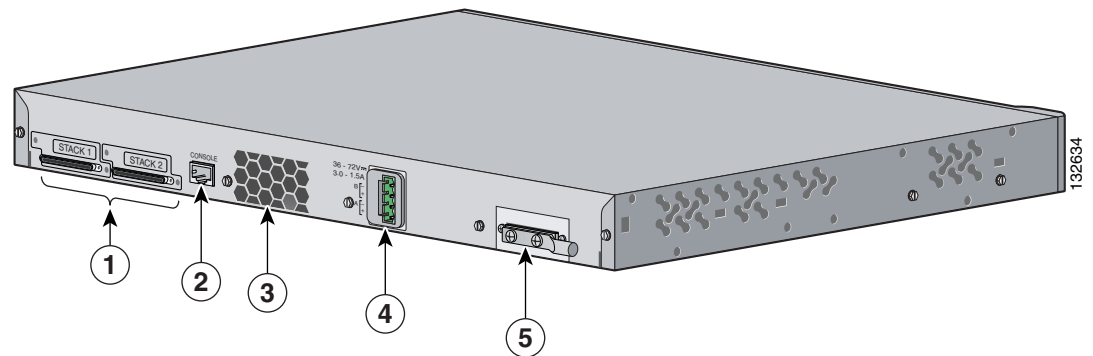


**Figure 1-21 Catalyst 3750G-24TS Switch Rear Panel**

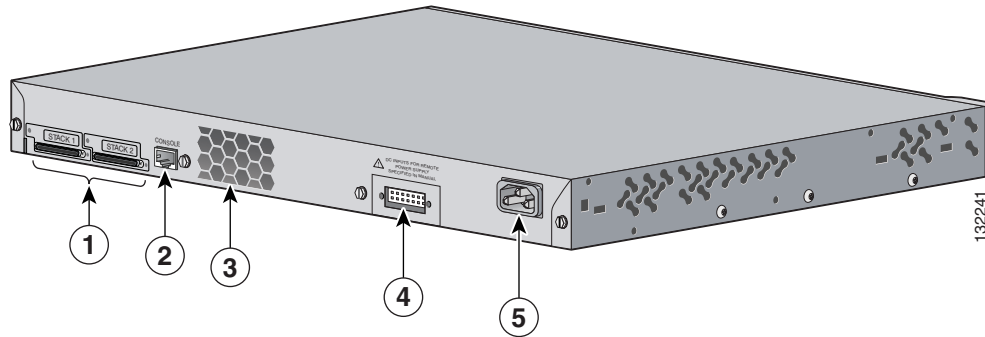


<b>1</b>	StackWise ports	<b>4</b>	AC power connector
<b>2</b>	RJ-45 console port	<b>5</b>	RPS connector
<b>3</b>	Fan exhaust		

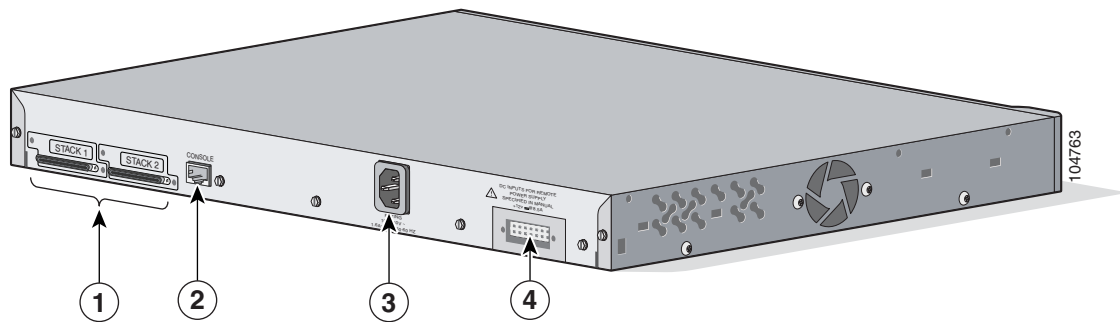
**Figure 1-22 Catalyst 3750G-12S-SD Switch Rear Panel**



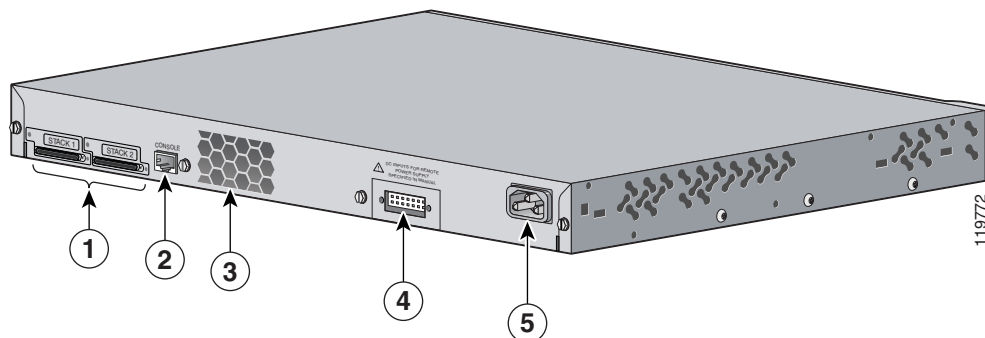
<b>1</b>	StackWise ports	<b>4</b>	DC power connector
<b>2</b>	RJ-45 console port	<b>5</b>	Ground lug bracket
<b>3</b>	Fan exhaust		

**Figure 1-23 Catalyst 3750-24FS Switch Rear Panel**

1	StackWise ports	4	RPS connector
2	RJ-45 console port	5	AC power connector
3	Fan exhaust		

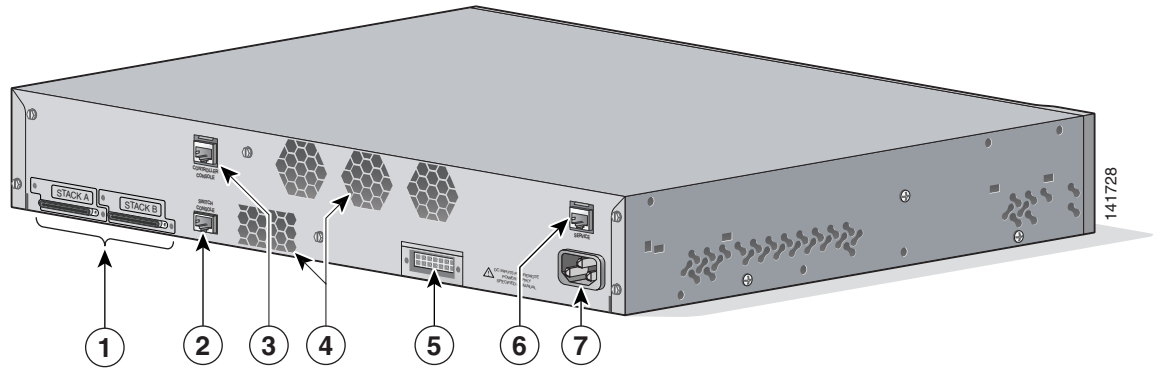
**Figure 1-24 Catalyst 3750-24PS and Catalyst 3750-48PS Switches Rear Panel**

1	StackWise ports	3	AC power connector
2	RJ-45 console port	4	RPS connector

**Figure 1-25 Catalyst 3750G-24PS, 3750G-24TS-1U, 3750G-48PS, and 3750G-48TS Switches Rear Panel**

1	StackWise ports	4	RPS connector
2	RJ-45 console port	5	AC power connector
3	Fan exhaust		

**Figure 1-26 Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switches Rear Panel**



1	StackWise ports	5	RPS connector
2	RJ-45 switch console port	6	Service port
3	RJ-45 controller console port	7	AC power connector
4	Fan exhaust		

## StackWise Ports

The Catalyst 3750 switch ships with a 0.5-meter StackWise cable (72-2632-XX CABASY) that you can use to connect the StackWise ports.



### Caution

Use only approved cables (CAB-STACK-50CM, CAB-STACK-1M, or CAB-STACK-3M), and connect only to similar Cisco equipment. Equipment might be damaged if connected to other nonapproved Cisco cables or equipment.

You can order these StackWise cables from your Cisco sales representative:

- CAB-STACK-50CM= (0.5-meter cable)
- CAB-STACK-1M= (1-meter cable)
- CAB-STACK-3M= (3-meter cable)

## Power Connectors

The switch is powered through the internal power supply. Except on the Catalyst 3750G-12S-SD switch, you can also connect the Cisco RPS 2300 or the Cisco RPS 675 to provide backup power should the switch internal power supply fail.



### Note

The Catalyst 3750 switch and the redundant power systems should be connected to the same AC power source.

## Internal Power Supply Connector

The internal power supply is an autoranging unit that supports input voltages between 100 and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet.

## DC Power Connector

The Catalyst 3750G-12S-SD has an internal DC-power converter. It has dual feeds (A and B) that are diode-OR-ed into a single power block. For installation instructions, see [Appendix C, “Connecting to DC Power.”](#)



### Caution

You must connect the Catalyst 3750G-12S-SD switch only to a DC-input power source that has an input supply voltage from  $-36$  to  $-72$  VDC. If the supply voltage is not in this range, the switch might not operate properly or might be damaged.

## Cisco RPS Connector

The Cisco RPS 2300 (model PWR-RPS2300) and the Cisco RPS 675 (model PWR675-AC-RPS-N1=) support the Catalyst 3750 family of switches, except the Catalyst 3750G-12S-SD switch.



### Warning

**Attach only the following Cisco RPS model to the RPS receptacle:**  
**PWR-RPS2300, PWR675-AC-RPS-N1=.** Statement 370

### Cisco RPS 2300

The Cisco RPS 2300 has two output levels:  $-52$  V and  $12$  V with a total maximum output power of  $2300$  W.

The Cisco RPS 2300 is a redundant power system that provides seamless failover for up to six network devices for internal power supply failures. It automatically senses if an internal power supply of a connected device fails and immediately supplies power to the failed device. For more information on the Cisco RPS 2300, see the *Cisco RPS 2300 Redundant Power System Hardware Installation Guide*.

### Cisco RPS 675

The Cisco RPS 675 has two output levels:  $-48$  V and  $12$  V with a total maximum output power of  $675$  W. Use the supplied RPS connector cable to connect the RPS to the switch.

The RPS is a redundant power system that can support six external network devices and provides power to one failed device at a time. It automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic. For more information on the Cisco RPS 675, see the *Cisco RPS 675 Redundant Power System Hardware Installation Guide*.

## Console Port

You can connect the switch to a PC by means of the console port and the supplied RJ-45-to-DB-9 female cable. If you want to connect the switch console port to a terminal, you need to provide an RJ-45-to-DB-25 female DTE adapter. You can order a kit (part number ACS-DSBUASYN=) containing that adapter from Cisco. For console port and adapter pinout information, see the “[Connector and Cable Specifications](#)” section on page B-1.

**Note**

---

On the Catalyst 3750G-24WS-S25 and the 3750G-24WS-S50 switches, there are two console ports; the switch console port and the controller console port. The controller console port can be used to directly configure the controller if you lose connectivity between the switch and the controller.

---

## Management Options

The Catalyst 3750 switches offer several management options:

- Network Assistant

Cisco Network Assistant is a PC-based network management GUI application optimized for LANs of small and medium-sized businesses. Cisco Network Assistant offers centralized management of Cisco switches that range from the Cisco Catalyst 2950 through the Cisco Catalyst 4506. Through a user-friendly GUI, users can configure and manage switch clusters or standalone switches. Cisco Network Assistant is available at no cost and can be downloaded from this URL:

<http://www.cisco.com/go/networkassistant>

For information on starting the Network Assistant application, see the *Getting Started with Cisco Network Assistant* guide on Cisco.com.

- Device manager

You can use the device manager, which is in the switch memory, to manage individual and standalone switches. This is an easy-to-use web interface that offers quick configuration and monitoring. You can access the device manager from anywhere in your network through a web browser. For more information, see the device manager online help.

- Cisco IOS command-line interface (CLI)

The switch CLI is based on Cisco IOS software and is enhanced to support desktop-switching features. You can fully configure and monitor the switch and switch cluster members from the CLI. You can access the CLI either by connecting your management station directly to the switch console port or by using Telnet from a remote management station. See the *Catalyst 3750 Switch Command Reference* on Cisco.com for more information.

- CiscoView application

The CiscoView device-management application displays the switch image that you can use to set configuration parameters and to view switch status and performance information. The CiscoView application, which you purchase separately, can be a standalone application or part of a Simple Network Management Protocol (SNMP) platform. See the CiscoView documentation for more information.

- SNMP network management

You can manage switches from a SNMP-compatible management station that is running platforms such as HP OpenView or SunNet Manager. The switch supports a comprehensive set of Management Information Base (MIB) extensions and four Remote Monitoring (RMON) groups. See the switch software configuration guide on Cisco.com and the documentation that came with your SNMP application for more information.

## Network Configurations

See the switch software configuration guide on Cisco.com for network configuration concepts and examples of using the switch to create dedicated network segments and interconnecting the segments through Gigabit Ethernet connections.



## CHAPTER 2

# Switch Installation

---

This chapter describes how to start your switch and how to interpret the power-on self-test (POST) that ensures proper operation. It describes the planning and cabling considerations to keep in mind while planning your stack. It describes how to install the switch and make connections to the switch. Read the topics and perform the procedures in this order:

- [Preparing for Installation, page 2-1](#)
- [Verifying Switch Operation, page 2-6](#)
- [Planning the Stack, page 2-7](#)
- [Installing the Switch, page 2-11](#)
- [Connecting StackWise Cable to StackWise Ports, page 2-30](#)
- [Installing and Removing SFP Modules, page 2-33](#)
- [Installing and Removing XENPAK Modules \(Catalyst 3750G-16TD Switch\), page 2-35](#)
- [Connecting to the 10/100 and 10/100/1000 Ports, page 2-39](#)
- [Connecting to an SFP Module, page 2-41](#)
- [Connecting to a XENPAK Module, page 2-44](#)
- [Where to Go Next, page 2-45](#)

## Preparing for Installation

This section covers these topics:

- [Warnings, page 2-2](#)
- [Installation Guidelines, page 2-5](#)
- [Verifying Package Contents, page 2-6](#)
- [Verifying Switch Operation, page 2-6](#)

## Warnings

These warnings are translated into several languages in the *Regulatory Compliance and Safety Information for the Catalyst 3750 Switch* document that ships with the switch.



Warning

**To prevent the switch from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 113°F (45°C). To prevent airflow restriction, allow at least 3 inches (7.6 cm) of clearance around the ventilation openings.** Statement 17B



Warning

**Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.** Statement 43



Warning

**Do not stack the chassis on any other equipment. If the chassis falls, it can cause severe bodily injury and equipment damage.** Statement 48



Warning

**An exposed wire lead from a DC-input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC-input power source wire extends from the terminal block plug.** Statement 122



Warning

**Ethernet cables must be shielded when used in a central office environment.** Statement 171



Warning

**If a redundant power system (RPS) is not connected to the switch, install an RPS connector cover on the back of the switch.** Statement 265



Warning

**To comply with safety regulations, mount switches on a wall with the front panel facing up.** Statement 266



Warning

**Attach only the following Cisco RPS model to the RPS receptacle: PWR-RPS2300, PWR675-AC-RPS-N1=.** Statement 370



Warning

**Do not work on the system or connect or disconnect cables during periods of lightning activity.** Statement 1001



Warning

**Read the installation instructions before connecting the system to the power source.** Statement 1004



**Warning**

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

**Warning**

**Class 1 laser product.** Statement 1008

**Warning**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Statement 1017

**Warning**

The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device. Statement 1019

**Warning**

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

**Warning**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

**Warning**

Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040

**Warning**

For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection: 10/100/1000 Ethernet. Statement 1044

**Warning**

**When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046

**Warning**

**To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 45°C** Statement 1047

**Warning**

**This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.** Statement 1071

**Warning**

**Voltages that present a shock hazard may exist on Power over Ethernet (PoE) circuits if interconnections are made using uninsulated exposed metal contacts, conductors, or terminals. Avoid using such interconnection methods, unless the exposed metal parts are located within a restricted access location and users and service people who are authorized within the restricted access location are made aware of the hazard. A restricted access area can be accessed only through the use of a special tool, lock and key or other means of security.** Statement 1072

**Warning**

**No user-serviceable parts inside. Do not open.** Statement 1073

**Warning**

**Installation of the equipment must comply with local and national electrical codes.** Statement 1074

**Caution**

To comply with the Telcordia GR-1089 Network Equipment Building Systems (NEBS) standard for electromagnetic compatibility and safety, connect the ethernet cables only to intrabuilding or nonexposed wiring or cabling.

**Note**

The grounding architecture of this product is DC-isolated (DC-I).

### Catalyst 3750G Integrated Wireless LAN Controller Switches

This warning applies only to the Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 switches:

**Warning**

**There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.** Statement 1015

## Installation Guidelines

When you decide where to place the switch, be sure to observe these requirements:

- For copper Ethernet ports, including 10/100 ports, 10/100/1000 ports, and 1000BASE-T SFP module ports, cable lengths from the switch to connected devices can be up to 328 feet (100 meters).
- See [Table B-3 on page B-5](#) for a list of cable specifications for 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, and CWDM fiber-optic SFP module connections. Each port must match the wave-length specifications on the other end of the cable, and for reliable communications, the cable must not exceed the stipulated cable length.
- See the Catalyst 3750 release notes for cable requirements for XENPAK module connections. Each port must match the wave-length specifications on the other end of the cable, and for reliable communications, the cable must not exceed the required cable length.

**Note**

When you use shorter distances of single-mode fiber cable, you might need to insert an inline optical attenuator in the link to avoid overloading the receiver.

When the fiber-optic cable span is less than 25 km, you should insert a 5-decibel (dB) or 10-dB inline optical attenuator between the fiber-optic cable plant and the receiving port on the 1000BASE-ZX SFP module at each end of the link.

- The operating environment must be within the ranges listed in [Appendix A, “Technical Specifications.”](#)
- Clearance to front and rear panels must be such that
  - You can easily read the front-panel indicators.
  - Access to ports is sufficient for unrestricted cabling.  
Make sure that there is access to the rear of the rack if you are planning to stack the switches. If you do not have access to the rear panel, make sure that you cable the switches before you rack-mount them.
  - The AC power cord can reach from the AC power outlet to the connector on the switch rear panel.
- Cabling must be away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures. Make sure the cabling is safely away from other devices that might damage the cables.
- Airflow around the switch and through the vents must be unrestricted.
- Temperature around the unit should not exceed 113°F (45°C).

**Note**

If you install the switch in a closed or multirack assembly, the temperature around it might be greater than normal room temperature.

## Verifying Package Contents


**Note**

Carefully remove the contents from the shipping container, and check each item for damage. If any item is missing or damaged, contact your Cisco representative or reseller for support. Return all packing material to the shipping container, and save it.

The switch is shipped with these items:

- The *Catalyst 3750 Switch Getting Started Guide* (Catalyst 3750-24TS, 3750G-24TS-1U, 3750G-24T, 3750G-24TS, 3750-48TS, 3750G-48TS, 3750-24PS, 3750G-24PS, 3750-48PS, 3750G-48PS and 3750G-16TD switches)
- The *Catalyst 3750G Integrated Wireless LAN Controller Switch Getting Started Guide* (3750G-24WS-S25 and 3750G-24WS-S50 switches)
- The *Regulatory Compliance and Safety Information for the Catalyst 3750 Switch*
- AC power cord (AC-powered switches)
- DC terminal block plug (DC-powered switches)
- One RJ-45-to-DB-9 adapter cable
- Mounting kit containing:
  - Four rubber feet for mounting the switch on a table
  - Two 19-inch rack-mounting brackets
  - Four Phillips flat-head screws for attaching the brackets to the switch (Catalyst 3750G-24TS switch)
  - Six Phillips flat-head screws for attaching the brackets to the switch (Catalyst 3750-24TS, 3750G-24TS-1U, 3750G-24T, 3750-48TS, 3750G-48TS, 3750-24PS, 3750G-12S, 3750G-12S-SD, 3750G-24PS, 3750-48PS, 3750G-48PS, 3750G-16TD, 3750G-24WS-S25, and 3750G-24WS-S50 switches)
  - Four Phillips machine screws for attaching the brackets to a rack
  - One cable guide and one black Phillips machine screw for attaching the cable guide to one of the mounting brackets
  - One RPS connector cover (for wall mounting)
  - Two Phillips pan-head screws (for attaching the RPS cover)
  - Four Phillips truss-head screws (for wall-mounting brackets)
  - StackWise cable: 0.5-meter, 1-meter, or 3-meter cable.


**Note**

If you do not specify the length of the StackWise cable, the 0.5-meter cable is supplied.

## Verifying Switch Operation

Before you install the switch in a rack, on a wall, or on a table or shelf, you should power on the switch and verify that the switch passes POST. See the “Running Express Setup” section in the getting started guide for the steps required to connect a PC to the switch and to run Express Setup.

## Powering On the Switch and Running POST

If your configuration has an RPS, connect the switch and the RPS to the same AC power source. See the “[Power Connectors](#)” section on page 1-25, and see the Cisco RPS documentation for more information.

**Note**

Always set the RPS in standby mode when you are connecting devices to it and in active mode during normal operation.

To power on the switch, connect one end of the AC power cord to the AC power connector on the switch, and connect the other end of the power cord to an AC power outlet.

To power on a DC switch, see [Appendix C, “Connecting to DC Power,”](#) for complete instructions.

**Warning**

**Attach only the Cisco RPS model to the RPS receptacle: PWR-RPS2300, PWR675-AC-RPS-N1=.** Statement 370

As the switch powers on, it begins the POST, a series of tests that runs automatically to ensure that the switch functions properly. POST lasts approximately 1 minute.

When the switch begins POST, the System, the RPS, the Master, the Status, the Duplex, the Speed, and the Stack LEDs turn green. (On the PoE switches, the PoE LED also turns green as POST begins.) The System LED flashes green, and the other LEDs remain continuous green.

When POST completes successfully, the System LED remains green. The RPS LED remains green for some time and then returns to its operating status. The other LEDs turn off and return to their operating status. When POST fails, the System LED turns amber.

**Note**

POST failures are usually fatal. Call Cisco Systems if your switch does not pass POST.

## Powering Off the Switch

After a successful POST, disconnect the power cord from the switch. Install the switch in a rack, on a wall, on a table, or on a shelf as described in the “[Installing the Switch](#)” section on page 2-11.

## Planning the Stack

If you plan to stack your switches, read these sections:

- [Planning Considerations, page 2-8](#)
- [Powering Considerations, page 2-8](#)
- [Cabling Considerations, page 2-8](#)
- [Recommended Cabling Configurations, page 2-10](#)

## Planning Considerations

Before connecting the Catalyst 3750 switches in a stack, observe these planning considerations:

- Size of the switch. For switch dimensions, see [Appendix A, “Technical Specifications.”](#) Some switches are deeper than the other switches. Stacking switches of the same size together makes it easier to cable the switches.
- Length of cable. Depending on the configurations that you have, you might need cables of different sizes. If you do not specify the length of the StackWise cable, the 0.5-meter cable is supplied. If you require the 1-meter cable or the 3-meter cable, you can order it from your Cisco supplier. For cable numbers, see the [“StackWise Ports” section on page 1-25](#). The [“Recommended Cabling Configurations” section on page 2-10](#) provides examples of recommended configurations.
- Access to the rear ports for unrestricted cabling.  
Make sure that you have access to the rear of the rack if you plan to stack the switches. If you do not have access to the rear panel, make sure that you cable the switches before you rack-mount them.
- For concepts and procedures to manage switch stacks, see the switch software configuration guide.

## Powering Considerations

Consider the following guidelines before you power on the switches in a stack:

- The sequence in which you initially power on the switches might affect the switch that becomes the stack master.
- If you want a particular switch to become the stack master, power on that switch first. This switch becomes the stack master and remains the stack master until a master re-election is required. After approximately 10 seconds, power on the remaining switches in the stack.
- If you have no preference as to which switch becomes the stack master, power on all the switches in the stack within a 10-second timeframe. These switches participate in the stack master election. Switches powered up after the 10-second timeframe do not participate in the election.
- Power off a switch before you add it to or remove it from an existing switch stack.

**Note**

---

For conditions that can cause a stack master re-election or to manually elect the stack master, see the [“Managing Switch Stacks” chapter](#) in the switch software configuration guide.

---

## Cabling Considerations

The illustrations in this section display cabling configuration examples that show the stack bandwidth and possible stack partitioning.

[Figure 2-1](#) shows an example of a stack of Catalyst 3750 switches that provides full bandwidth and redundant StackWise cable connections.

**Figure 2-1 Example of a Stack with Full Bandwidth Connections**

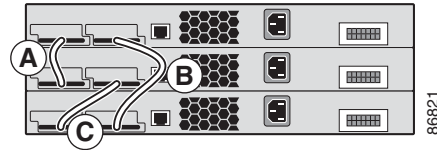


Figure 2-2 shows an example of a stack of Catalyst 3750 switches with incomplete StackWise cabling connections. This stack provides only half bandwidth and does not have redundant connections.

**Figure 2-2 Example of a Stack with Half Bandwidth Connections**

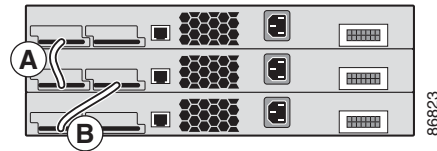
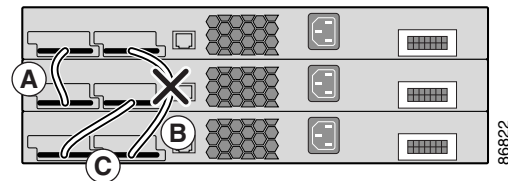
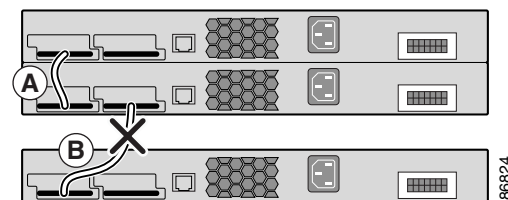


Figure 2-3 and Figure 2-4 show examples of stacks of Catalyst 3750 switches with failover conditions. In Figure 2-3, the StackWise cable is bad in link B; therefore, this stack provides only half bandwidth and does not have redundant connections. In Figure 2-4, link B is bad; therefore, this stack partitions into two stacks, and switch 1 and switch 3 are stack masters.

**Figure 2-3 Example of a Stack with a Failover Condition**



**Figure 2-4 Example of a Partitioned Stack with a Failover Condition**



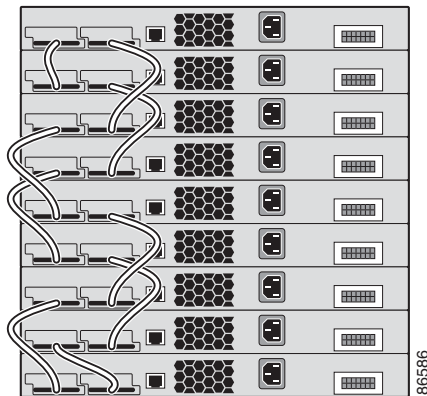
## Recommended Cabling Configurations

This section describes the recommended cabling configurations for stacking the switches.

### Stacking Switches in Vertical Racks or on a Table

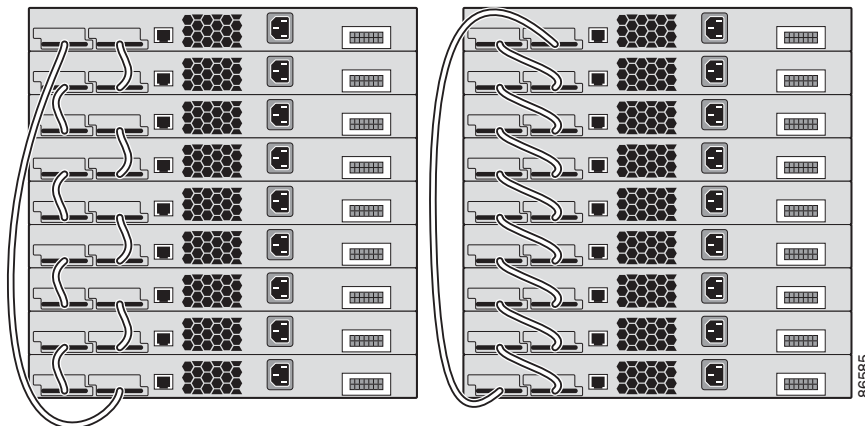
Figure 2-5 is an example of a recommended configuration using the supplied 0.5-meter StackWise cable. In this example, the switches are stacked in a vertical rack or on a table. This configuration provides redundant connections.

**Figure 2-5** *Stacking the Switches in a Vertical Rack or on a Table Using the 0.5-meter StackWise Cable*



The configuration examples in Figure 2-6 use the 3-meter StackWise cable in addition to the supplied 0.5-meter StackWise cable. This configuration also provides redundant connections.

**Figure 2-6** *Stacking the Catalyst 3750 Switches in a Vertical Rack or on a Table Using 0.5-meter and 3-meter StackWise Cables*

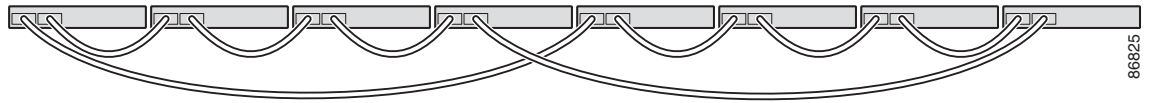




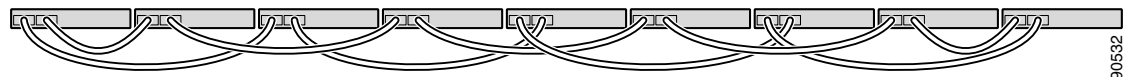
## Side-by-Side Mounting in a Rack or on a Wall

Figure 2-7 and Figure 2-8 are examples of recommended configurations where the switches are rack- or wall-mounted side-by-side. Use the 1-meter and 3-meter StackWise cables to connect the switches. These configuration provide redundant connections.

**Figure 2-7** Stacking up to Eight Switches in a Side-by-Side Mounting Configuration



**Figure 2-8** Stacking Nine Switches in a Side-by-Side Mounting Configuration



## Installing the Switch

This section describes these installation procedures:

- [Rack-Mounting, page 2-11](#)
- [Wall-Mounting, page 2-27](#)
- [Table- or Shelf-Mounting, page 2-30](#)

## Rack-Mounting



### Warning

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

To install the switch in a 19-inch or 24-inch rack (24-inch racks require optional mounting hardware), follow the instructions described in these procedures:

- [Removing Screws from the Switch, page 2-12](#)
- [Attaching Brackets to the Catalyst 3750G-24TS Switch, page 2-14](#)
- [Attaching Brackets to the Catalyst 3750G Integrated Wireless LAN Controller Switches, page 2-17](#)
- [Attaching Brackets to All Other Catalyst 3750 Switches, page 2-18](#)
- [Mounting the Switch in a Rack, page 2-24](#)
- [Attaching the Cable Guide, page 2-26](#)

**Note**

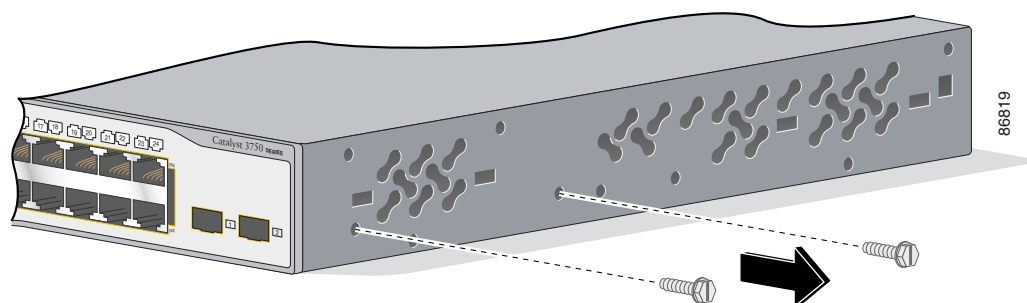
When you install the switch in a 24-inch rack, an optional bracket kit that is not included with the switch is required. You can order a kit containing the 24-inch rack-mounting brackets and hardware from Cisco. For the Catalyst 3750G-24TS switches, order part number RCKMNT-3550-1.5RU=. For the other Catalyst 3750 switches, order part number RCKMNT-1RU=. The Catalyst 3750G-24WS-S25 and the 3750G-24WS-S50 switches do not support 24-inch rack-mounting.

## Removing Screws from the Switch

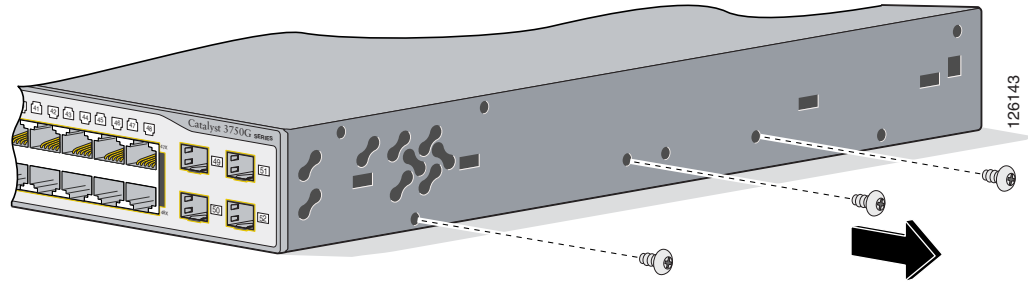
If you plan to install the switch in a rack, you must first remove the screws in the switch chassis so that you can attach the mounting brackets.

- [Figure 2-9, Figure 2-10, and Figure 2-11](#) show how to remove the chassis screws in a 1-rack-unit (RU) switch.
- [Figure 2-12](#) shows how to remove the chassis screws in a 1.5-RU switch.
- [Figure 2-13](#) shows how to remove the chassis screws in a 2-RU switch.

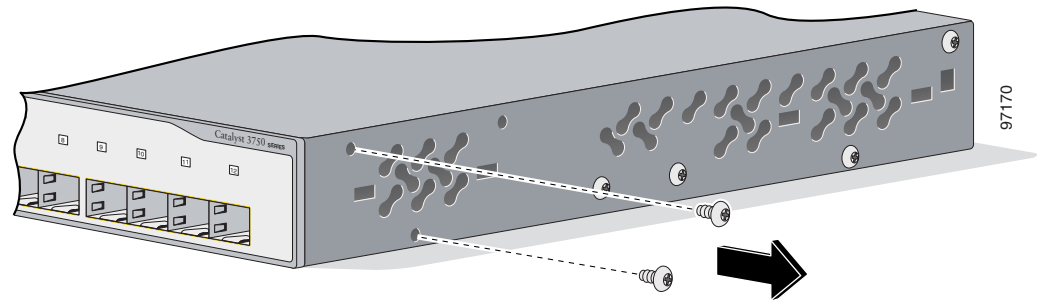
**Figure 2-9** *Removing Screws from the Catalyst 3750-24TS, 3750G-24T, 3750-24PS, 3750-48PS, 3750G-16TD, and 3750-48TS Switches*



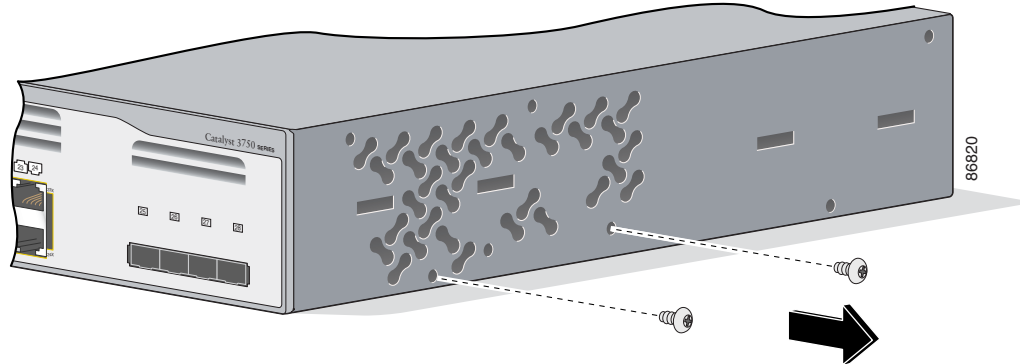
**Figure 2-10** Removing Screws from the Catalyst ,3750G-24TS-1U, 3750G-24PS, 3750G-48PS, and 3750G-48TS Switches



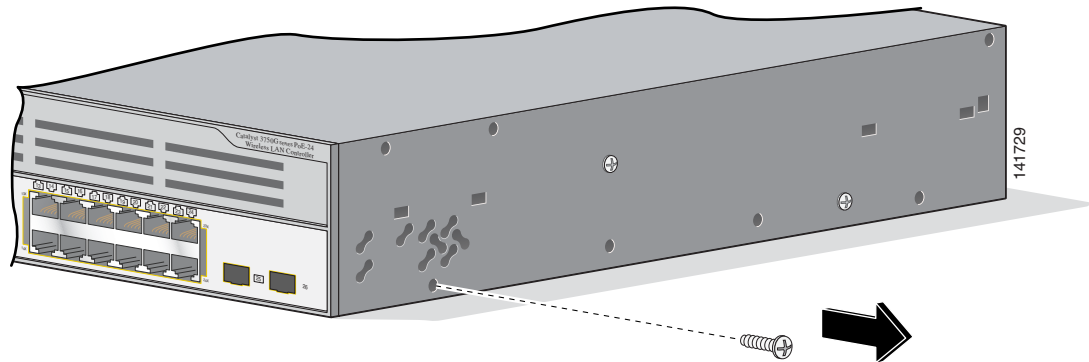
**Figure 2-11** Removing Screws from the Catalyst 3750G-12S and 3750-12S-SD Switch



**Figure 2-12** Removing Screws from the 3750G-24TS Switch



**Figure 2-13** Removing Screws from the 3750G-24WS-S25 and the 3750G-24WS-S50 Switches

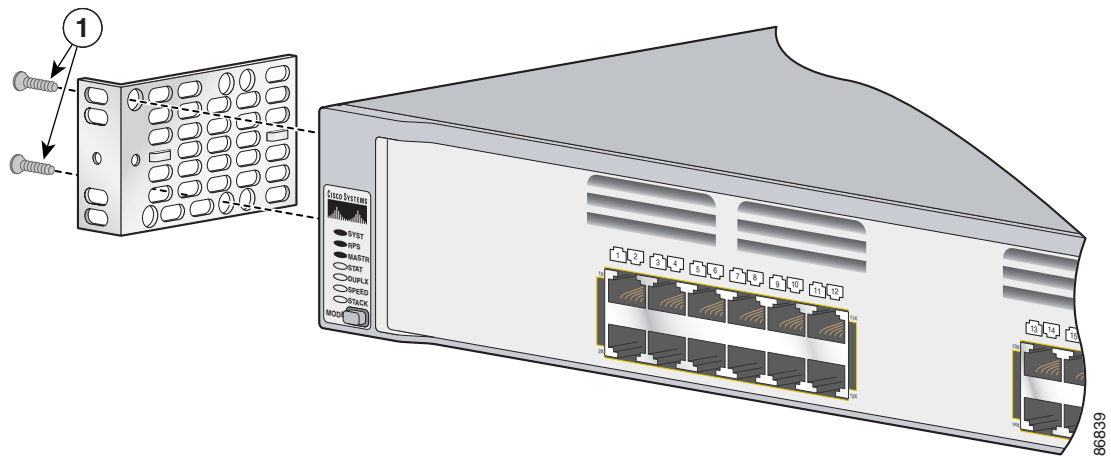


## Attaching Brackets to the Catalyst 3750G-24TS Switch

The bracket orientation and the brackets that you use depend on whether you are attaching the brackets for a 19-inch or a 24-inch rack.

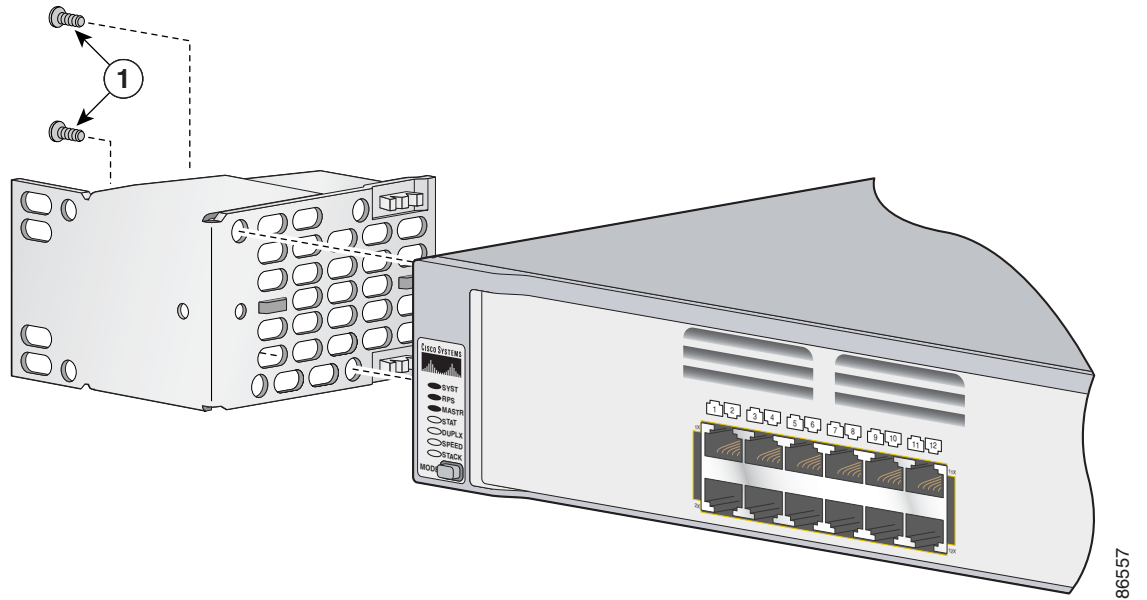
Figure 2-14 through Figure 2-19 show how to attach each type bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side.

**Figure 2-14** Attaching Brackets for 19-inch Racks, Front Panel Forward



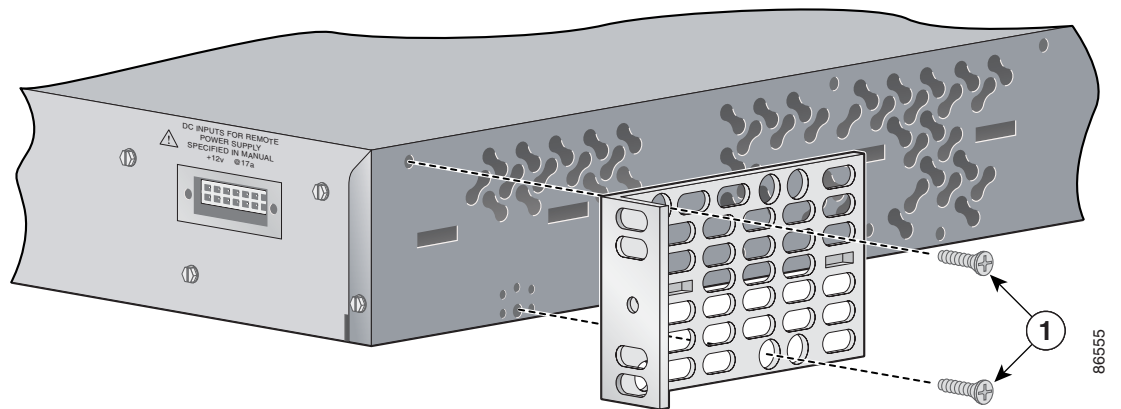
**1** Phillips flat-head screws

**Figure 2-15** Attaching Brackets for 24-Inch Racks, Front Panel Forward



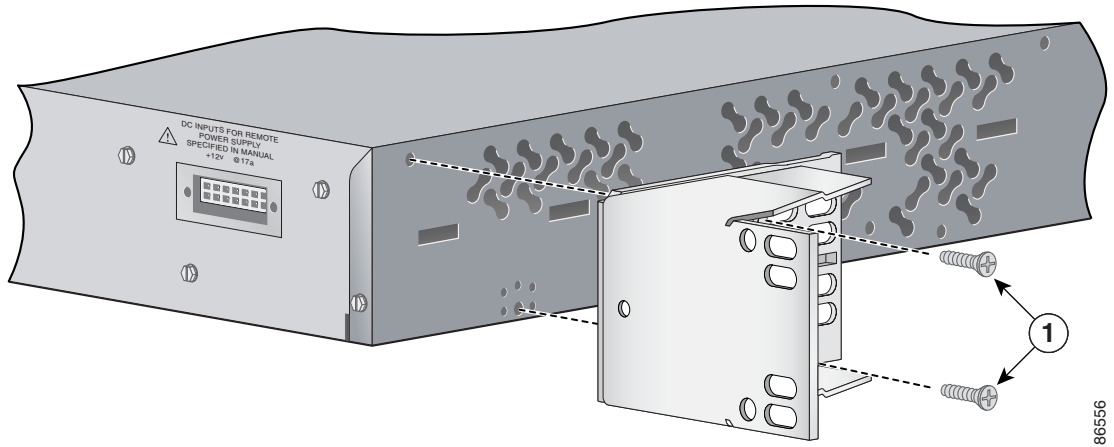
- 1 Phillips flat-head screws

**Figure 2-16** Attaching Brackets for 19-Inch Racks, Rear Panel Forward



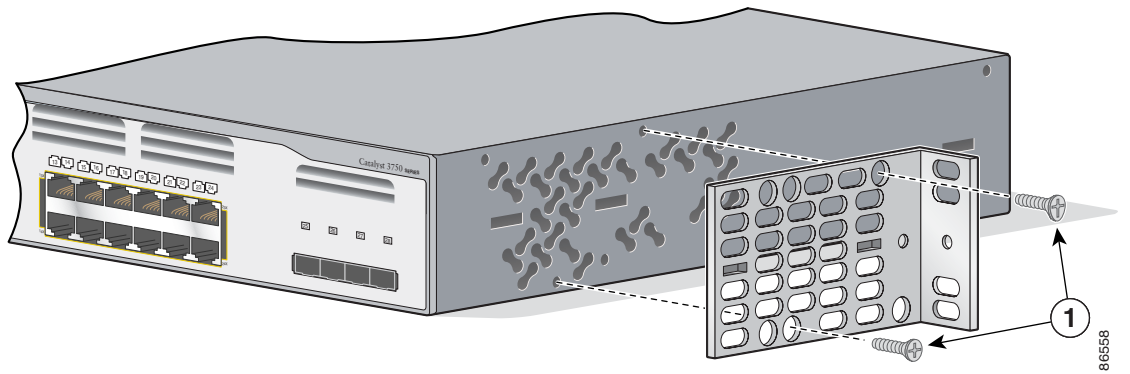
- 1 Phillips flat-head screws

**Figure 2-17 Attaching Brackets for 24-Inch Racks, Rear Panel Forward**



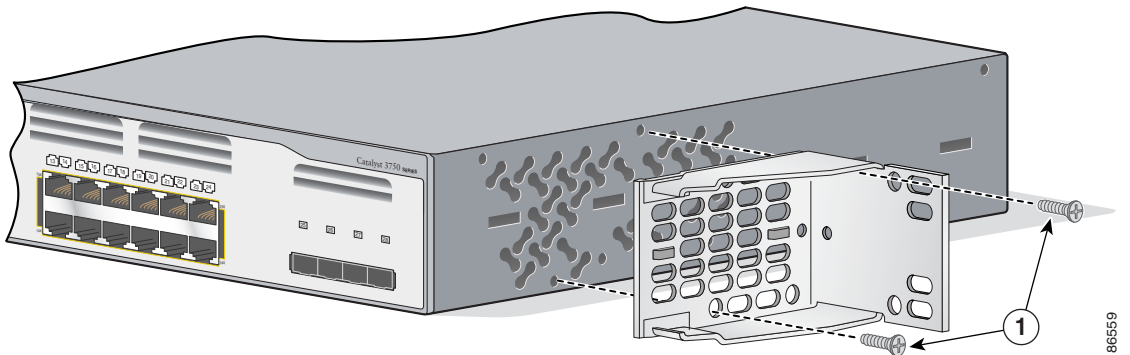
- 1 Phillips flat-head screws

**Figure 2-18 Attaching Brackets for 19-Inch Telco Racks**



- 1 Phillips flat-head screws

**Figure 2-19 Attaching Brackets for 24-Inch Telco Racks**

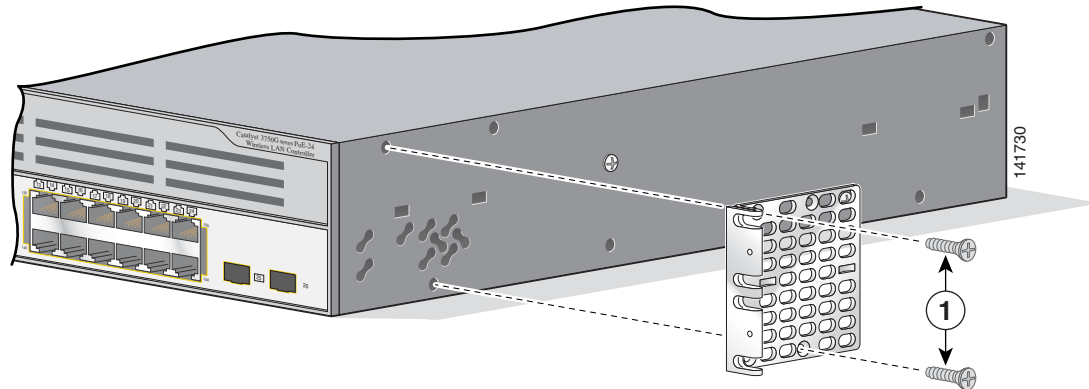


- 1 Phillips flat-head screws

## Attaching Brackets to the Catalyst 3750G Integrated Wireless LAN Controller Switches

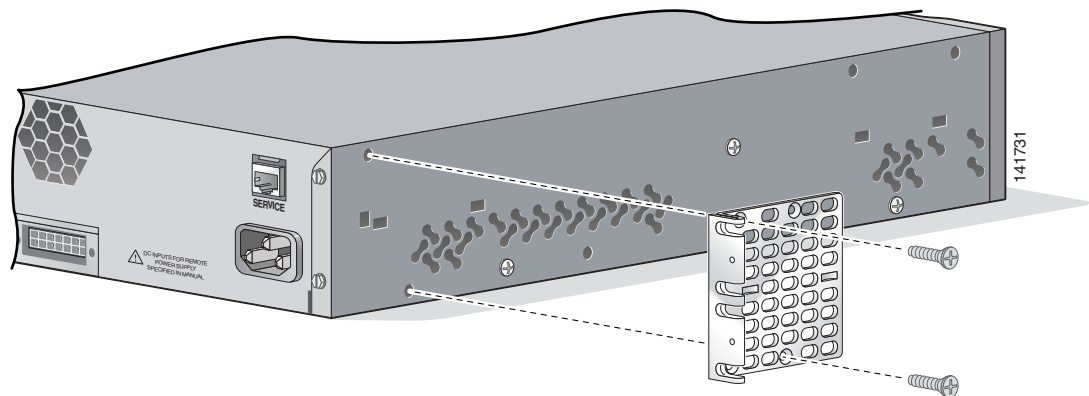
The wireless LAN controller switches can only be mounted on 19-inch racks. This section describes how to attach 19-inch brackets on the Catalyst 3750G-24WS-S25 and the 3750G-24WS-S50 switches. [Figure 2-20](#), [Figure 2-21](#), and [Figure 2-22](#) show how to attach the bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side. For 19-inch racks, use part number 700-21419-XX.

**Figure 2-20** Attaching Brackets for 19-Inch Racks, Front Panel Forward

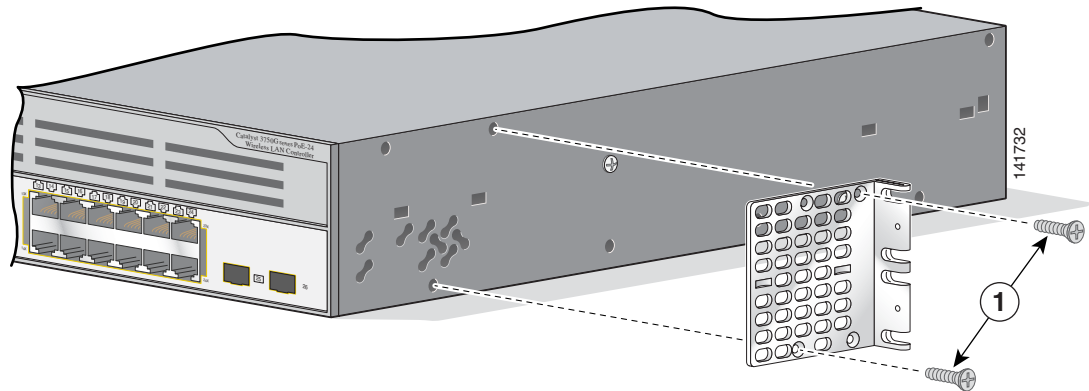


- |          |                           |
|----------|---------------------------|
| <b>1</b> | Phillips flat-head screws |
|----------|---------------------------|

**Figure 2-21** Attaching Brackets for 19-Inch Racks, Rear Panel Forward



**Figure 2-22 Attaching Brackets for 19-Inch Telco Racks**



<b>1</b>	Phillips flat-head screws
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## Attaching Brackets to All Other Catalyst 3750 Switches

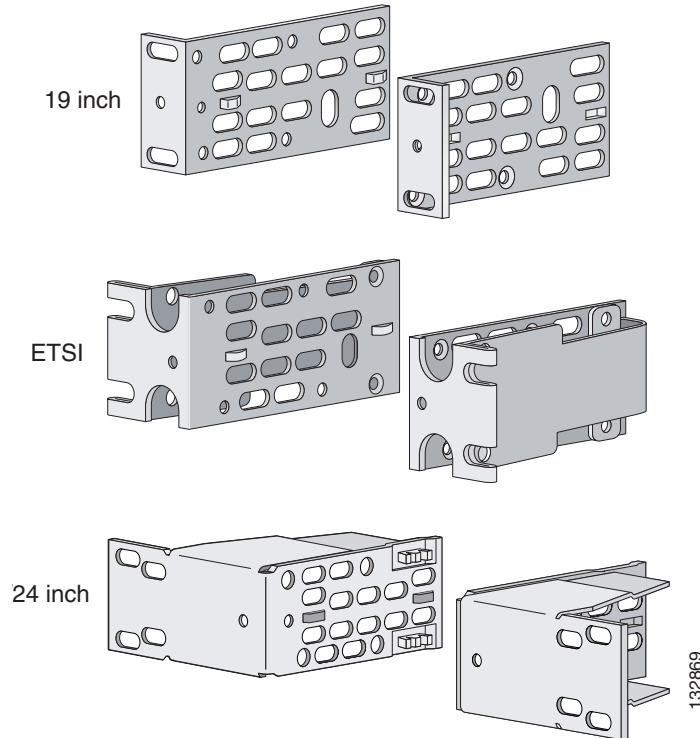
This section describes how to attach brackets to these Catalyst 3750 switches:

- Catalyst 3750-24TS and Catalyst 3750G-24TS
- Catalyst 3750G-24T
- Catalyst 3750-24FS
- Catalyst 3750G-12S and 3750G-12S-SD
- Catalyst 3750-24PS and Catalyst 3750G-24PS
- Catalyst 3750-48PS and Catalyst 3750G-48PS
- Catalyst 3750G-16TD
- Catalyst 3750-48TS and Catalyst 3750G-48TS



The bracket orientation and the brackets that you use depend on whether you are attaching the brackets for a 19-inch, a 23-inch, a 24-inch rack, or a ETSI rack. [Figure 2-23](#) shows the bracket options.

**Figure 2-23 Rack-Mounting Brackets**

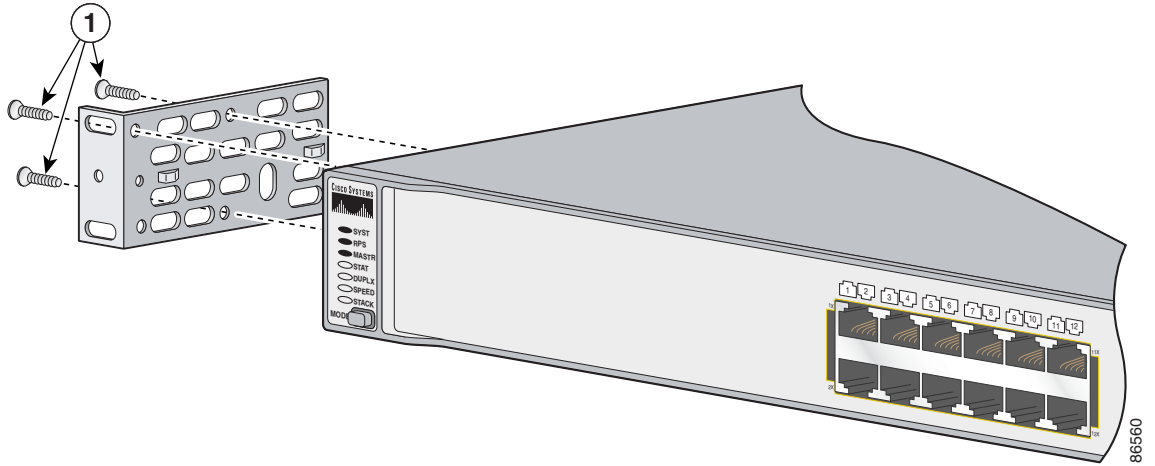


- For 19-inch racks, use part number 700-08209-XX, and see [Attaching Brackets for 19-Inch Racks and 19-Inch Telco Racks](#), page 2-19.
- For 23-inch racks, use part number 700-21646-XX, and see [Attaching Brackets for 23-Inch Racks](#), page 2-21.
- For 24-inch racks, use part number 700-12398-XX, and see [Attaching Brackets for 24-Inch Racks and 24-Inch Telco Racks](#), page 2-22.
- For ETSI racks, use part number 700-19781XX, and see [Attaching Brackets for ETSI Racks](#), page 2-23.

### Attaching Brackets for 19-Inch Racks and 19-Inch Telco Racks

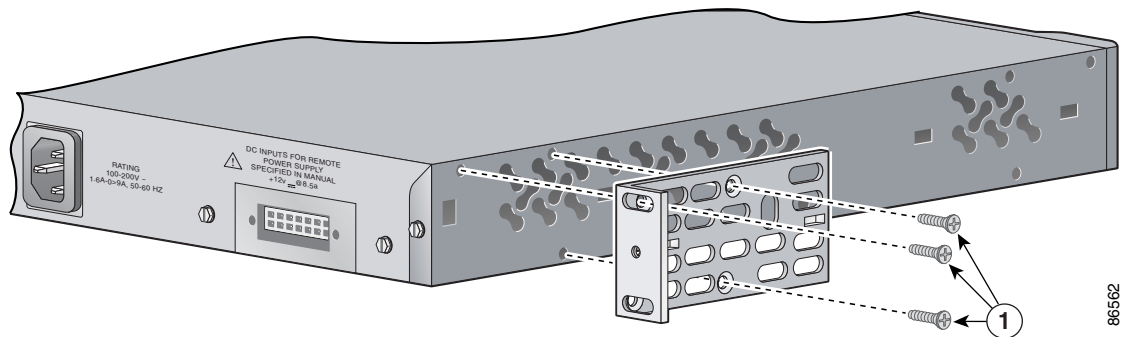
This section shows to attach brackets for 19-inch racks in [Figure 2-24](#) through [Figure 2-27](#). These illustrations show how to attach each type of bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side.

**Figure 2-24 Attaching Brackets for 19-Inch Racks, Front Panel Forward**



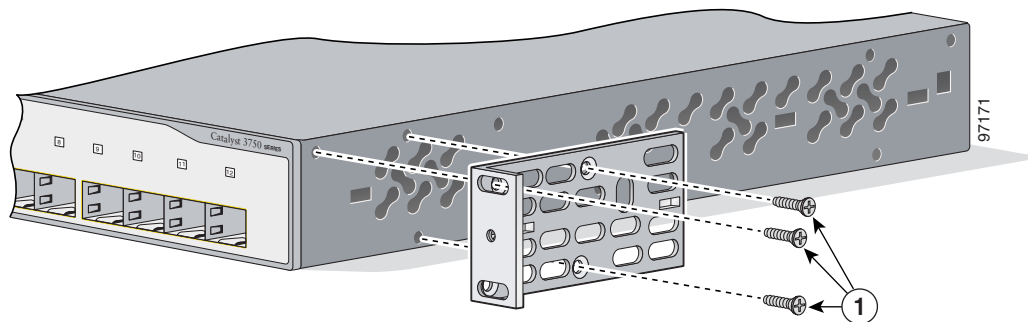
- 1** Phillips flat-head screws

**Figure 2-25 Attaching Brackets for 19-Inch Racks, Rear Panel Forward**

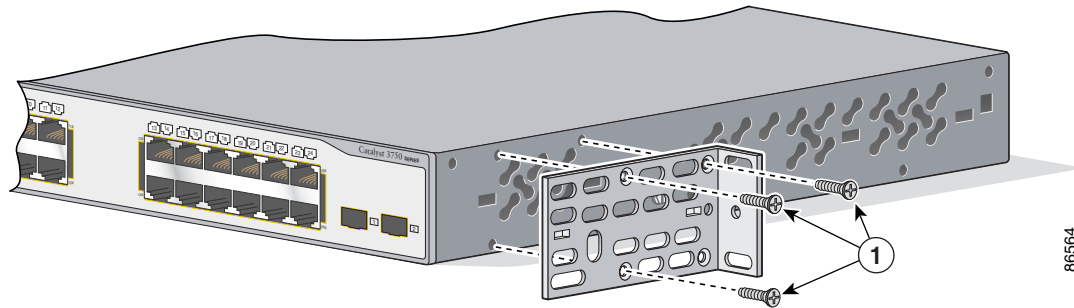


- 1** Phillips flat-head screws

**Figure 2-26 Attaching Brackets for 19-Inch Racks**



- 1** Phillips truss-head screws

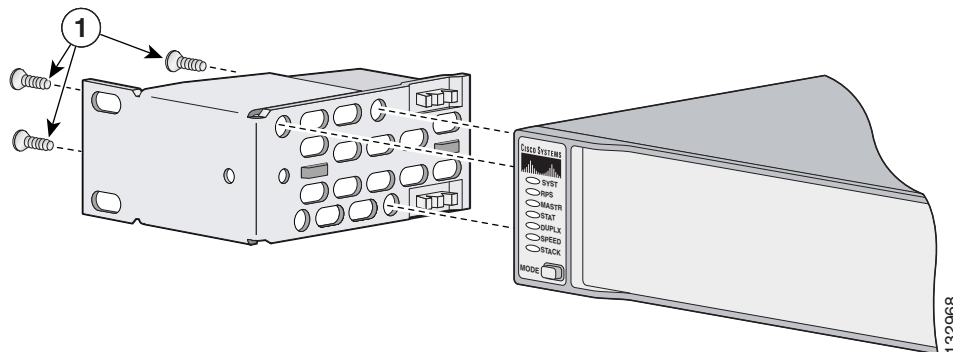
**Figure 2-27 Attaching Brackets for 19-Inch Telco Racks**

86564

<b>1</b>	Phillips flat-head screws
----------	---------------------------

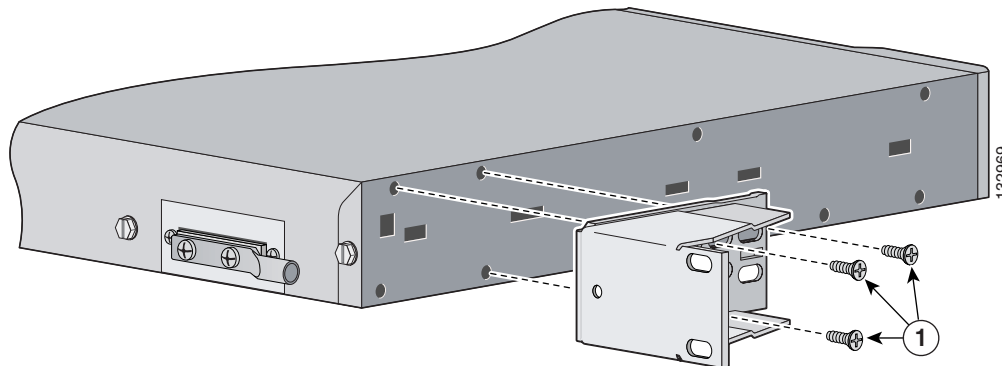
### Attaching Brackets for 23-Inch Racks

This section shows to attach brackets for 23-inch racks in [Figure 2-28](#) and [Figure 2-29](#). These illustrations show how to attach each type of bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side.

**Figure 2-28 Attaching Brackets for 23-Inch Racks, Front Panel Forward**

132968

<b>1</b>	Phillips flat-head screws
----------	---------------------------

**Figure 2-29 Attaching Brackets for 23-Inch Racks, Rear Panel Forward**

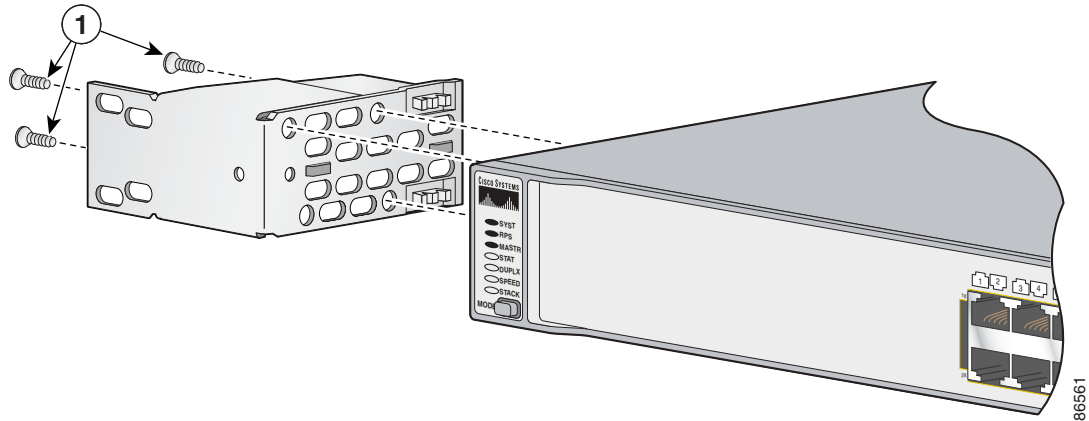
132969

<b>1</b>	Phillips flat-head screws
----------	---------------------------

## Attaching Brackets for 24-Inch Racks and 24-Inch Telco Racks

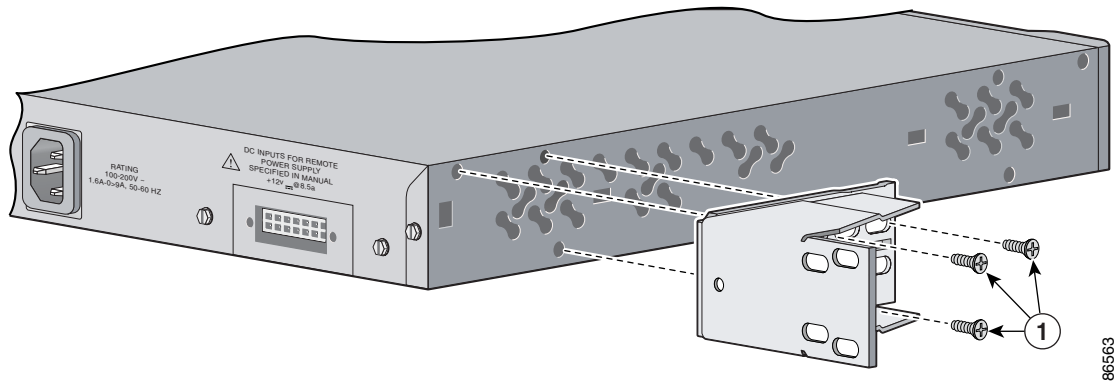
This section shows to attach brackets for ESTI racks in [Figure 2-30](#), [Figure 2-31](#), and [Figure 2-32](#). These illustrations show how to attach each type of bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side.

**Figure 2-30** Attaching Brackets for 24-Inch Racks, Front Panel Forward



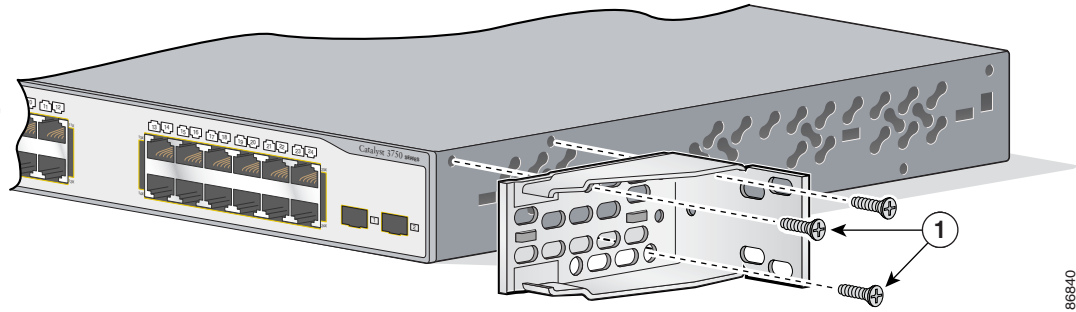
**1** Phillips flat-head screws

**Figure 2-31** Attaching Brackets for 24-Inch Racks, Rear Panel Forward



**1** Phillips flat-head screws

**Figure 2-32 Attaching Brackets for 24-Inch Telco Racks**



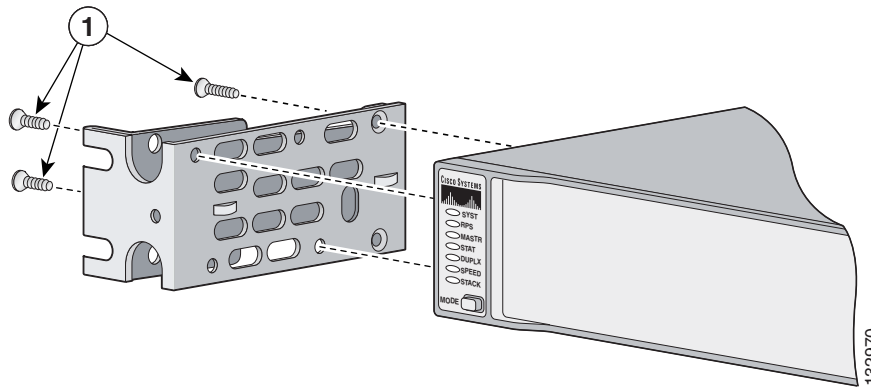
86840

- |          |                           |
|----------|---------------------------|
| <b>1</b> | Phillips flat-head screws |
|----------|---------------------------|

**Attaching Brackets for ETSI Racks**

This section shows to attach brackets for ESTI racks in [Figure 2-33](#) and [Figure 2-34](#). These illustrations show how to attach each type of bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side.

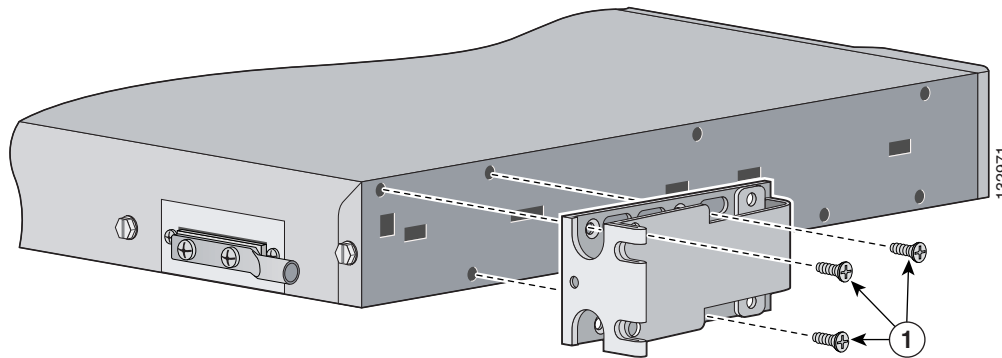
**Figure 2-33 Attaching Brackets for ESTI Racks, Front Panel Forward**



132970

- |          |                           |
|----------|---------------------------|
| <b>1</b> | Phillips flat-head screws |
|----------|---------------------------|

**Figure 2-34 Attaching Brackets for ETSI Racks, Rear Panel Forward**



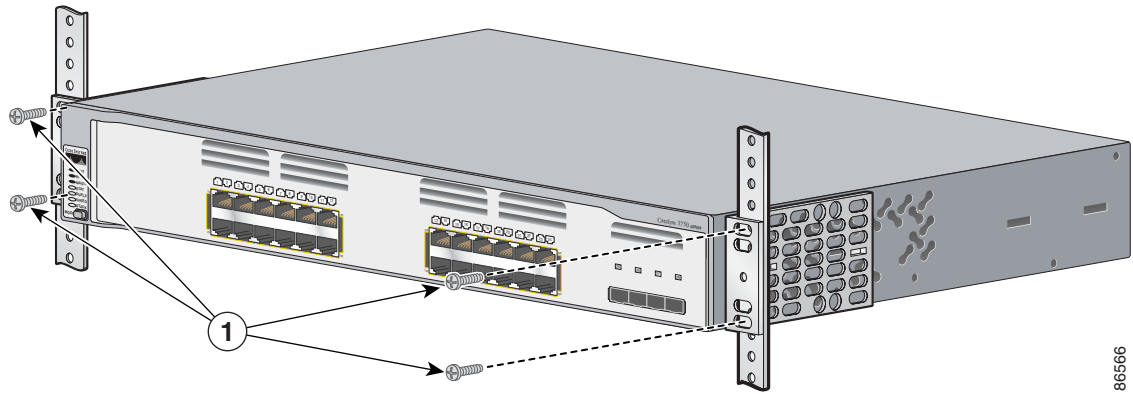
132971

- |          |                           |
|----------|---------------------------|
| <b>1</b> | Phillips flat-head screws |
|----------|---------------------------|

## Mounting the Switch in a Rack

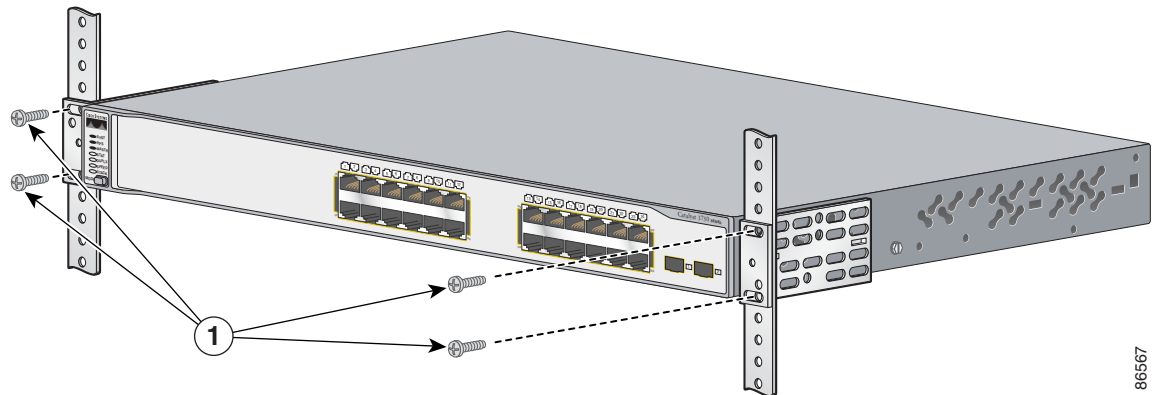
After the brackets are attached to the switch, use the four supplied number-12 Phillips machine screws to securely attach the brackets to the rack, as shown in [Figure 2-35](#), [Figure 2-36](#) and [Figure 2-37](#).

**Figure 2-35** *Mounting the Catalyst 3750G-24TS Switch in a Rack*



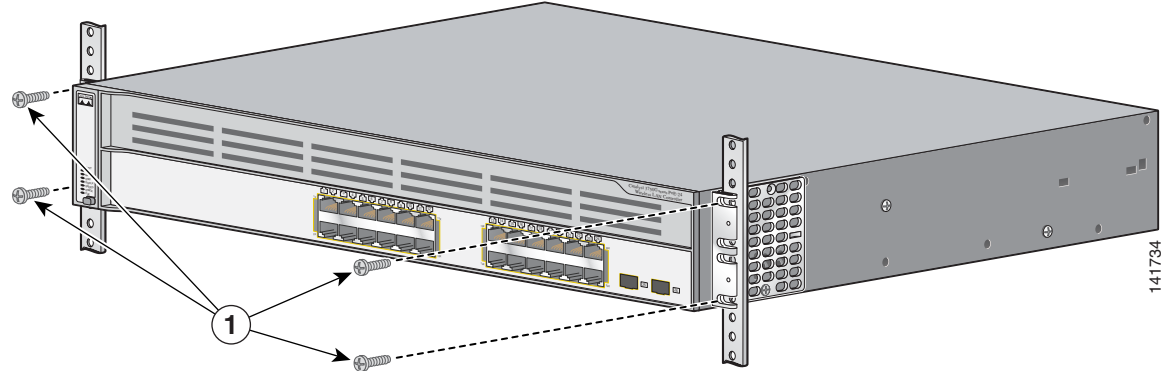
**1** Phillips machine screws

**Figure 2-36** *Mounting the Other Catalyst 3750 Switches in a Rack*



**1** Phillips machine screws

**Figure 2-37** Mounting the Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switches in a Rack



<b>1</b>	Phillips machine screws
----------	-------------------------

After you mount the switch in the rack, you might need to perform these tasks to complete the installation, to run the setup program, and to access the switch:

- (Optional) Connect the switches in the stacks. See the [“Connecting StackWise Cable to StackWise Ports”](#) section on page 2-30.
- Power on the switch. See the [“Verifying Switch Operation”](#) section on page 2-6. If the switches are stacked, see the [“Planning Considerations”](#) section on page 2-8 for information on powering considerations.
- Connect to a 10/100 or 10/100/1000 port and run Express Setup. See the *Catalyst 3750 Switch Getting Started Guide* for instructions.
- Connect to the front-panel ports. See the [“Connecting to the 10/100 and 10/100/1000 Ports”](#) section on page 2-39 and the [“Connecting to an SFP Module”](#) section on page 2-41 to complete the installation.

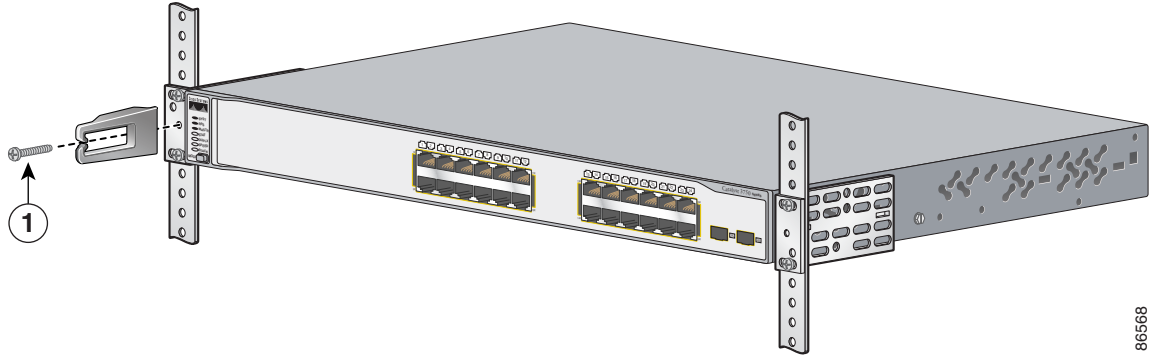
For configuration instructions about using the CLI setup program, go to [Appendix D, “Configuring the Switch with the CLI-Based Setup Program.”](#)

To use the CLI, enter commands at the *Switch>* prompt through the console port by using a terminal program or through the network by using Telnet. For configuration information, see the switch software configuration guide or the switch command reference.

## Attaching the Cable Guide

We recommend attaching the cable guide to prevent the cables from obscuring the front panel of the switch and the other devices installed in the rack. Use the supplied black screw, as shown in [Figure 2-38](#), [Figure 2-39](#) and [Figure 2-40](#) to attach the cable guide to the left or right bracket.

**Figure 2-38** Attaching the Cable Guide on the 24-Port Catalyst 3750 Switches



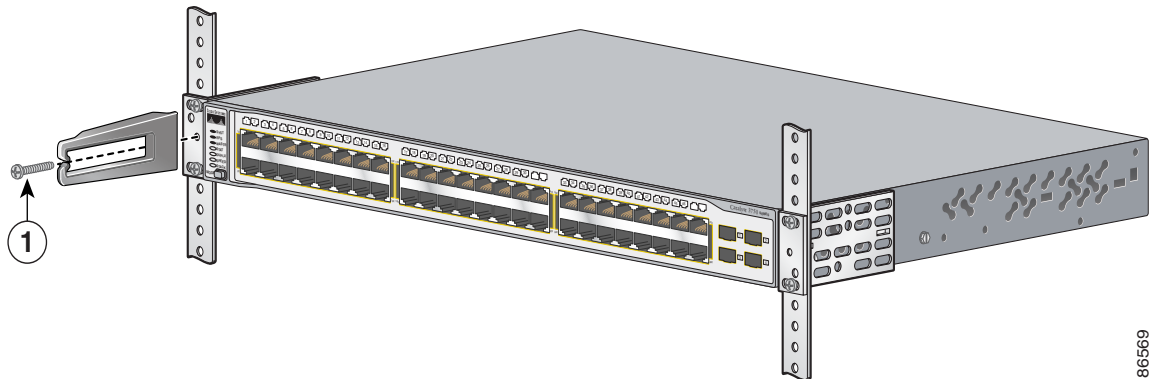
**1** Cable guide screws



### Note

The 48-port Catalyst 3750 switches ship with the cable guide shown in [Figure 2-39](#). This cable guide secures up to 48 cables. Use the supplied black screw to mount it on the left bracket.

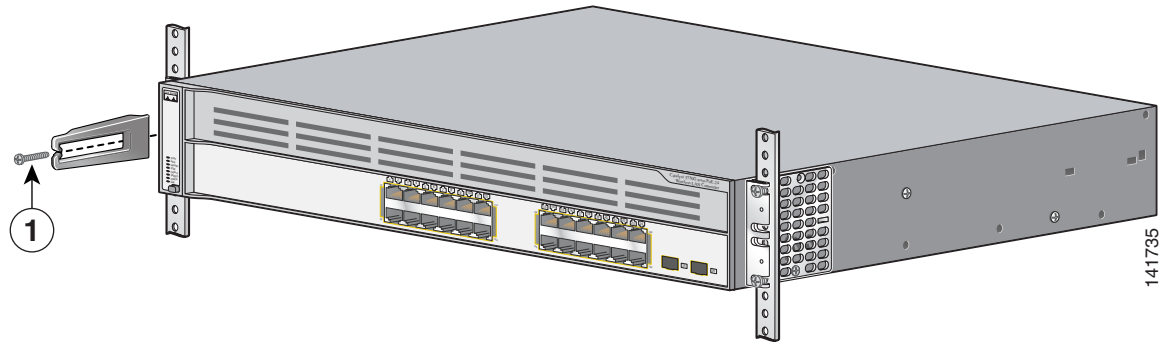
**Figure 2-39** Attaching the Cable Guide on the 48-Port Catalyst 3750 Switches



**1** Cable guide screws



**Figure 2-40** Attaching the Cable Guide on the Catalyst 3750 Integrated Wireless LAN Controller Switches



1	Cable guide screws
---	--------------------

## Wall-Mounting

To install the switch on a wall, follow the instructions in these procedures:

- [Attaching the Brackets to the Switch for Wall-Mounting, page 2-28](#)
- [Attaching the RPS Connector Cover, page 2-28](#)
- [Mounting the Switch on a Wall, page 2-29](#)



**Note**

The illustrations in this section show the Catalyst 3750G-24TS switch as an example. All the Catalyst 3750 switches are wall-mounted following the same procedures.



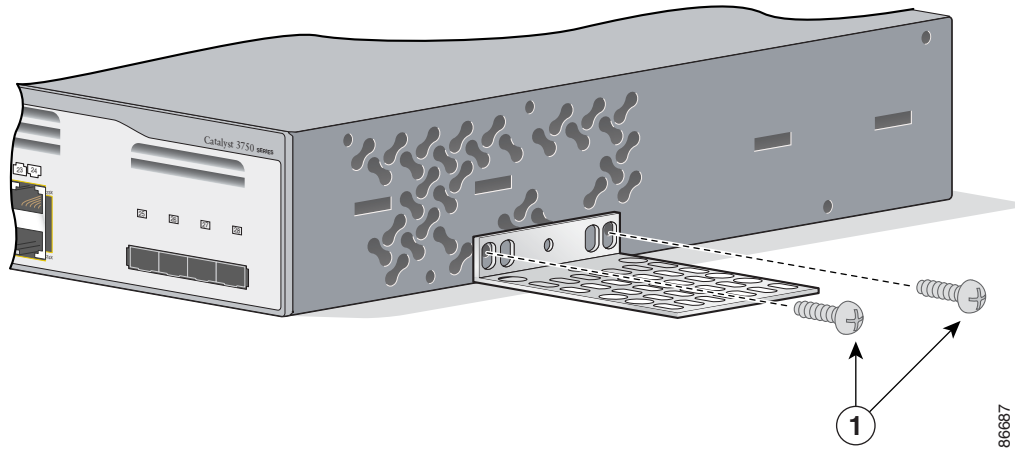
**Note**

Do not wall-mount the Catalyst 3750G-24WS-S25 and Catalyst 3750G-24WS-S50 switches.

## Attaching the Brackets to the Switch for Wall-Mounting

Figure 2-41 shows how to attach a 19-inch bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side.

**Figure 2-41 Attaching the 19-inch Brackets for Wall-Mounting**



- |          |                            |
|----------|----------------------------|
| <b>1</b> | Phillips truss-head screws |
|----------|----------------------------|

## Attaching the RPS Connector Cover

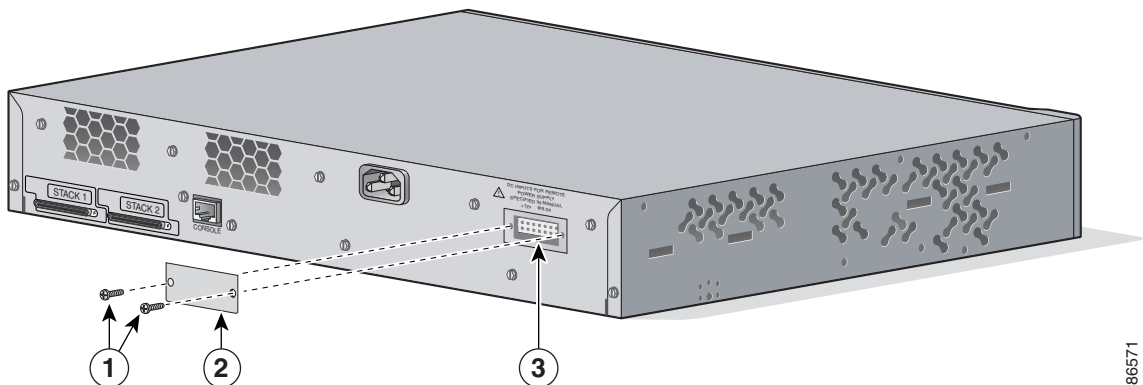
If you are not using an RPS with your switch, use the two Phillips pan-head screws to attach the RPS connector cover to the back of the switch, as shown in Figure 2-42.



**Warning**

**If an RPS is not connected to the switch, install an RPS connector cover on the back of the switch.**  
Statement 265

**Figure 2-42 Attaching the RPS Connector Cover on the Catalyst 3750 Switch**



- |          |                          |          |               |
|----------|--------------------------|----------|---------------|
| <b>1</b> | Phillips pan-head screws | <b>3</b> | RPS connector |
| <b>2</b> | RPS connector cover      |          |               |

## Mounting the Switch on a Wall

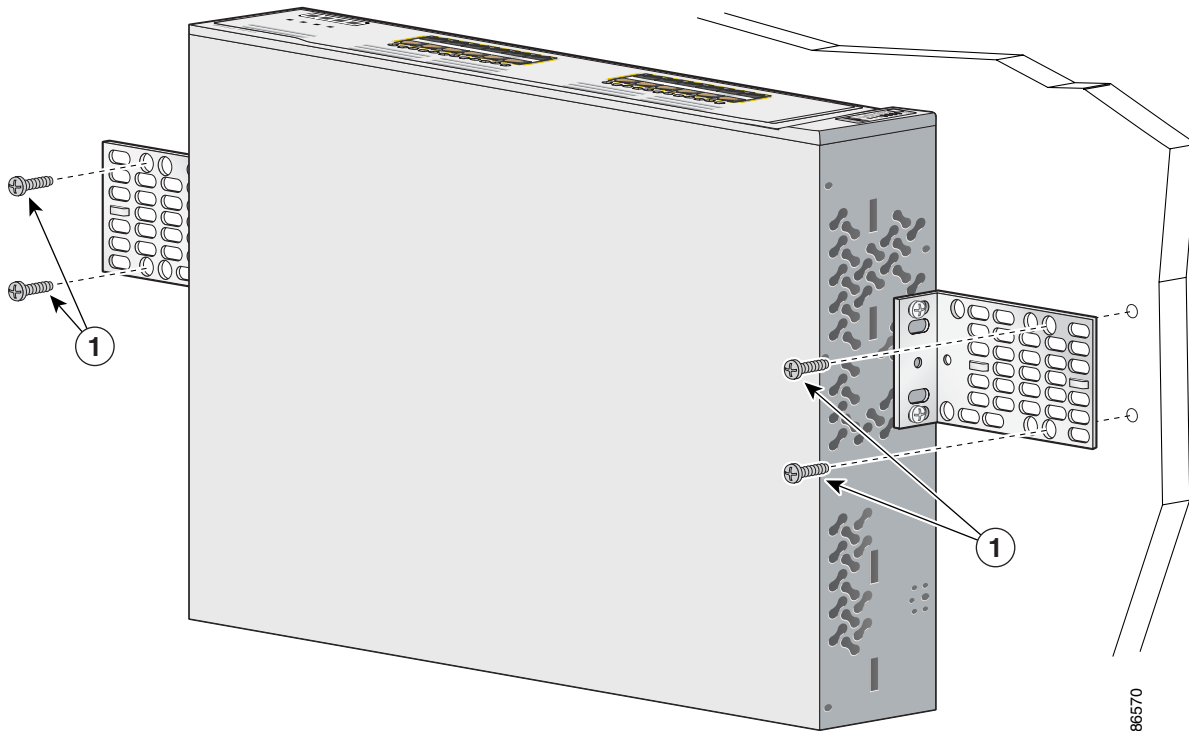
For the best support of the switch and cables, make sure the switch is attached securely to wall studs or to a firmly attached plywood-mounting backboard. Mount the switch with the front panel facing up, as shown in [Figure 2-43](#).



### Warning

To comply with safety regulations, mount the switches on a wall with the front panel facing up.  
Statement 266

**Figure 2-43** Mounting the Switch on a Wall



<b>1</b>	User-supplied screws
----------	----------------------

After the switch is mounted on the wall, you might need to perform these tasks to complete the installation, run the setup program, and access the switch:

- (Optional) Connect the switches in the stacks. See the [“Connecting StackWise Cable to StackWise Ports”](#) section on page 2-30.
- Power on the switch. See the [“Verifying Switch Operation”](#) section on page 2-6. If the switches are stacked, see the [“Planning Considerations”](#) section on page 2-8 for information on powering considerations.
- Connect to a 10/100 or 10/100/1000 port and run Express Setup. See the *Catalyst 3750 Switch Getting Started Guide* for instructions.
- Connect to the front-panel ports. See the [“Connecting to the 10/100 and 10/100/1000 Ports”](#) section on page 2-39 and the [“Connecting to an SFP Module”](#) section on page 2-41 to complete the installation.

For configuration instructions about using the CLI setup program, go to [Appendix D, “Configuring the Switch with the CLI-Based Setup Program.”](#)

To use the CLI, enter commands at the *Switch>* prompt through the console port by using a terminal program or through the network by using Telnet. For configuration information, see the switch software configuration guide or the switch command reference.

## Table- or Shelf-Mounting

Follow these steps to install the switch on a table or shelf:

- 
- Step 1** Locate the adhesive strip with the rubber feet in the mounting-kit envelope. Attach the four rubber feet to the recessed areas on the bottom of the unit.
- Step 2** Place the switch on the table or shelf near an AC power source.

After the switch is mounted on the table, you might need to perform these tasks to complete the installation, run the setup program, and access the switch:

- (Optional) Connect the switches in the stacks. See the [“Connecting StackWise Cable to StackWise Ports” section on page 2-30.](#)
- Power on the switch. See the [“Verifying Switch Operation” section on page 2-6.](#) If the switches are stacked, see the [“Planning Considerations” section on page 2-8](#) for information on powering considerations.
- Connect to a 10/100 or 10/100/1000 port and run Express Setup. See the *Catalyst 3750 Switch Getting Started Guide* for instructions.
- Connect to the front-panel ports. See the [“Connecting to the 10/100 and 10/100/1000 Ports” section on page 2-39](#) and the [“Connecting to an SFP Module” section on page 2-41](#) to complete the installation.

For configuration instructions about using the CLI setup program, go to [Appendix D, “Configuring the Switch with the CLI-Based Setup Program.”](#)

To use the CLI, enter commands at the *Switch>* prompt through the console port by using a terminal emulation program or through the network by using Telnet. For configuration information, see the switch software configuration guide or the switch command reference.

---

## Connecting StackWise Cable to StackWise Ports

Follow these steps to connect the StackWise cable to the StackWise ports:

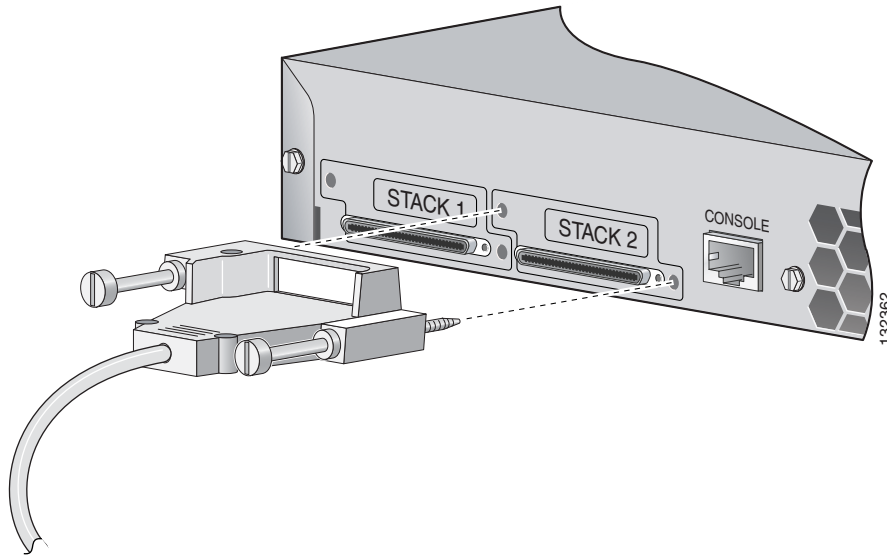
- 
- Step 1** Remove the dust covers from the StackWise cables and StackWise ports, and store them for future use.
- Step 2** Insert one end of the StackWise cable into the StackWise port on the back of the switch. (See [Figure 2-44.](#))



**Note** Always use a Cisco-approved StackWise cable to connect the switches.

---

**Figure 2-44** Inserting the StackWise Cable in a StackWise Port



- Step 3** Use the window in the StackWise cable to align the connector correctly. Secure the screws tightly.
- Step 4** Insert the other end of the cable into the connector of the other switch, and secure the screws tightly.



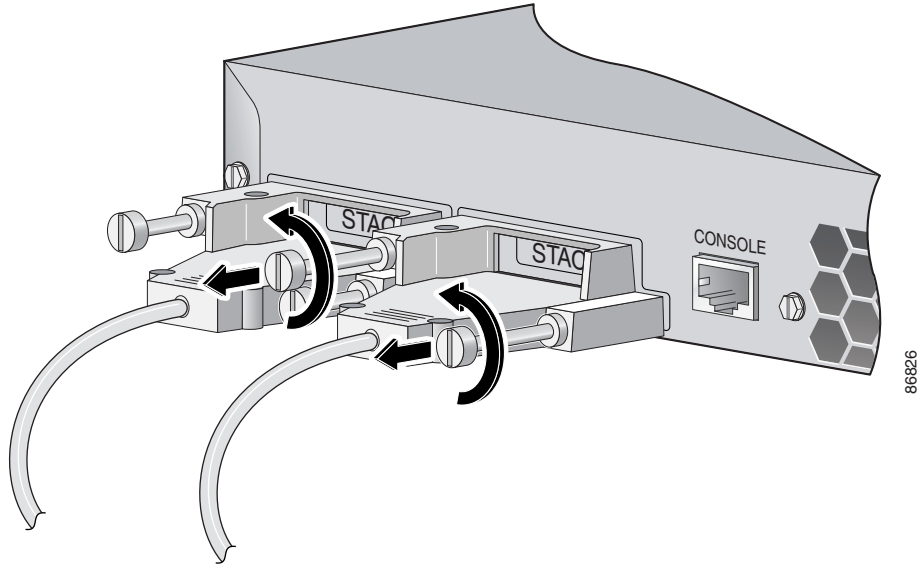
**Caution** Removing and installing the StackWise cable can shorten its useful life. Do not remove and insert the cable more often than is absolutely necessary.

Replace the dust covers on the connectors to protect them from dust when you are not using them.

When you need to remove the StackWise cable from the connector, make sure to fully unscrew the screws before removing the connector. Make sure that you also remove the correct screws from the StackWise port.

Figure 2-45 shows the correct removal procedure.

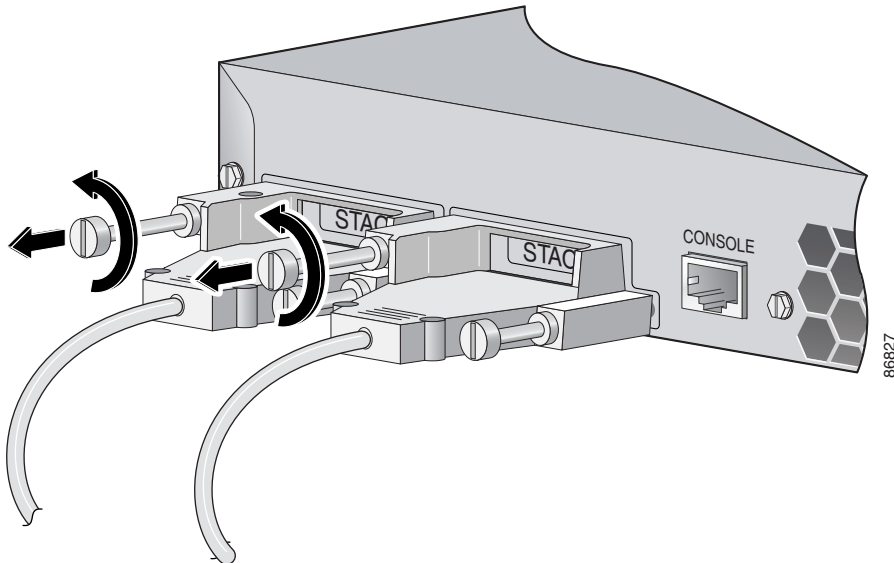
**Figure 2-45** Correct Removal of the StackWise Cable from a StackWise Port



**Caution**

Do not remove the cable by using the procedure shown in Figure 2-46.

**Figure 2-46** Incorrect Removal of a StackWise Cable from a StackWise Port



# Installing and Removing SFP Modules

These sections describe how to install and remove SFP modules. SFP modules are inserted into SFP module slots on the front of the Catalyst 3750 switches. These field-replaceable modules provide uplink interfaces.

You can use any combination of SFP modules. See the Catalyst 3750 release notes for the list of SFP modules that the Catalyst 3750 switch supports. Each port must match the wave-length specifications on the other end of the cable, and the cable must not exceed the stipulated cable length for reliable communications. See the “[Installation Guidelines](#)” section on page 2-5 for cable stipulations for SFP connections.

Use only Cisco SFP modules on the Catalyst 3750 switch. Each SFP module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the SFP module meets the requirements for the switch.

For detailed instructions on installing, removing, and cabling the SFP module, see your SFP module documentation.

## Installing SFP Modules into SFP Module Slots

Figure 2-47 shows an SFP module that has a bale-clasp latch.

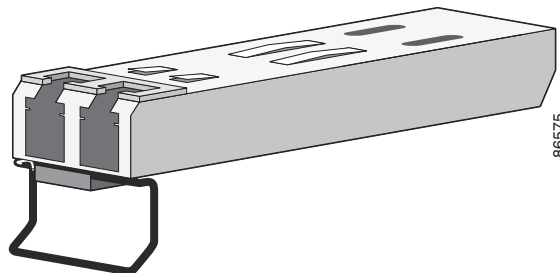


**Caution**

We strongly recommend that you do not install or remove fiber-optic SFP modules with cables attached because of the potential damage to the cables, the cable connector, or the optical interfaces in the SFP module. Disconnect all cables before removing or installing an SFP module.

Removing and installing an SFP module can shorten its useful life. Do not remove and insert SFP modules more often than is absolutely necessary.

**Figure 2-47** SFP Module with a Bale-Clasp Latch



To insert an SFP module into the SFP module slot, follow these steps:

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.
- Step 2** Find the send (TX) and receive (RX) markings that identify the top side of the SFP module.

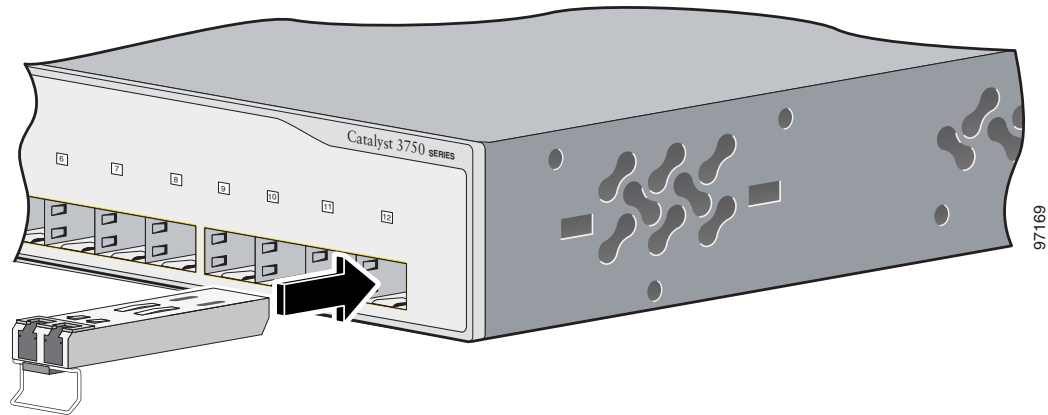


**Note**

On some SFP modules, the send and receive (TX and RX) markings might be replaced by arrows that show the direction of the connection, either send or receive (TX or RX).

- Step 3** Align the SFP module in front of the slot opening.
- Step 4** Insert the SFP module into the slot until you feel the connector on the module snap into place in the rear of the slot.

**Figure 2-48** Installing an SFP Module into an SFP Module Slot



- Step 5** For fiber-optic SFP modules, remove the dust plugs from the optical ports, and store them for later use.



**Caution**

Do not remove the dust plugs from the fiber-optic SFP module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light.

- Step 6** Insert the cable connector into the SFP module:
- For fiber-optic SFP modules, insert the LC or MT-RJ cable connector into the SFP module.
  - For copper SFP modules, insert the RJ-45 cable connector into the SFP module.



**Note**

When you connect to 1000BASE-T SFP modules, be sure to use a twisted four-pair, Category 5 or later cable.

## Removing SFP Modules from SFP Module Slots

To remove an SFP module from a module slot, follow these steps:

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.
- Step 2** Disconnect the cable from the SFP module.



**Tip**

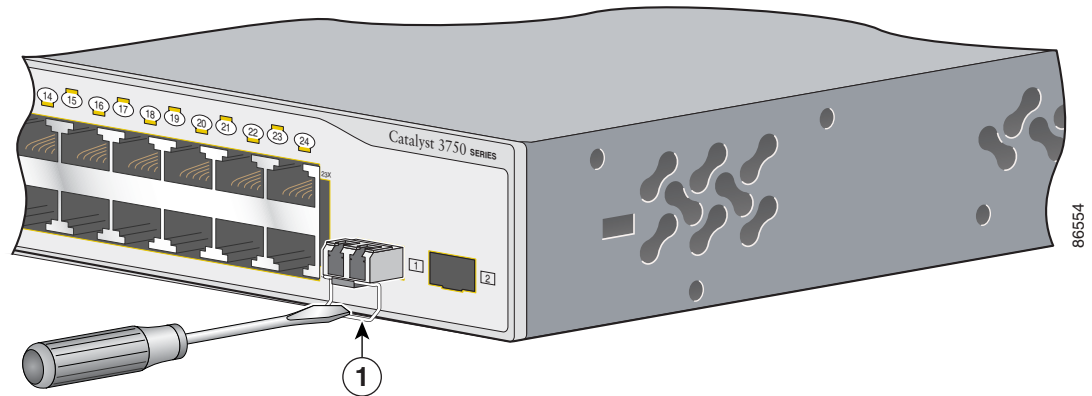
For reattachment, note which cable connector plug is send (TX) and which is receive (RX).



**Step 3** Unlock and remove the SFP module, as shown in [Figure 2-49](#).

If the module has a bale-clasp latch, pull the bale out and down to eject the module. If the bale-clasp latch is obstructed and you cannot use your index finger to open it, use a small, flat-blade screwdriver or other long, narrow instrument to open the bale-clasp latch.

**Figure 2-49** Removing a Bale-Clasp Latch SFP Module by Using a Flat-Blade Screwdriver



<b>1</b>	Bale clasp
----------	------------

**Step 4** Grasp the SFP module between your thumb and index finger, and carefully remove it from the module slot.

**Step 5** For fiber-optic SFP modules, insert a dust plug into the optical ports of the SFP module to keep the optical interfaces clean.

**Step 6** Place the removed SFP module in an antistatic bag or other protective environment.

## Installing and Removing XENPAK Modules (Catalyst 3750G-16TD Switch)

These sections describe how to install and remove XENPAK modules:

- [Removing SFP Modules from SFP Module Slots, page 2-34](#)
- [Removing a XENPAK Module, page 2-38](#)

XENPAK modules are inserted into the XENPAK module slot on the front panel of the Catalyst 3750G-16TD switch. These field-replaceable transceiver modules provide 10-Gigabit interfaces.



### Note

The 10-Gigabit Ethernet XENPAK modules are referred to as 10-Gigabit Ethernet module ports in the switch software documentation.

See the Catalyst 3750 release notes for the list of XENPAK modules that the Catalyst 3750G-16TD switch supports. Use only Cisco XENPAK modules on the Catalyst 3750G-16TD switch. Each XENPAK module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the XENPAK module meets the requirements for the switch.

See [Table B-2 on page B-4](#) for cable requirements for XENPAK module connections. For detailed instructions on installing, removing, cabling, and troubleshooting the XENPAK module, see your XENPAK module documentation.

## Installing a XENPAK Module

[Figure 2-50](#) shows a XENPAK module.



### Caution

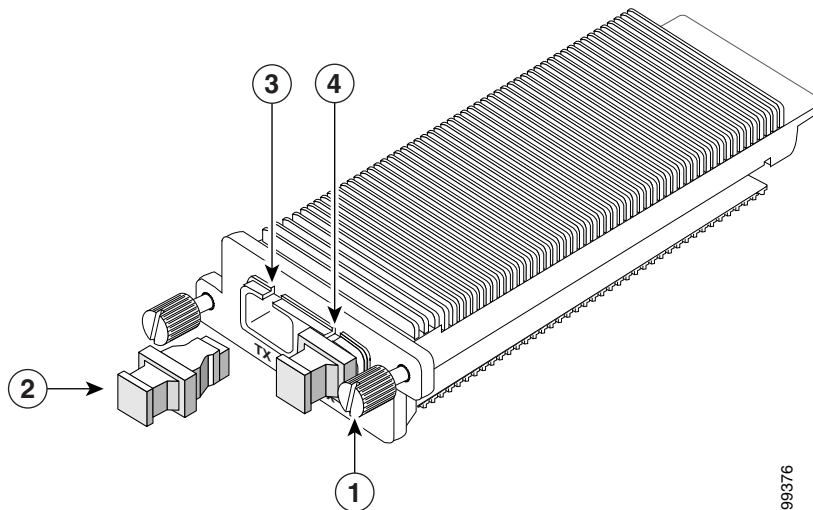
We strongly recommend that you do not install or remove fiber-optic XENPAK modules with cables attached because of the potential damage to the cables, the cable connector, or the optical interfaces in the XENPAK module. Disconnect all cables before removing or installing the XENPAK module.



### Caution

Do not remove the dust plugs from the fiber-optic XENPAK module or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the XENPAK module ports and cables from contamination and ambient light.

**Figure 2-50** XENPAK Module



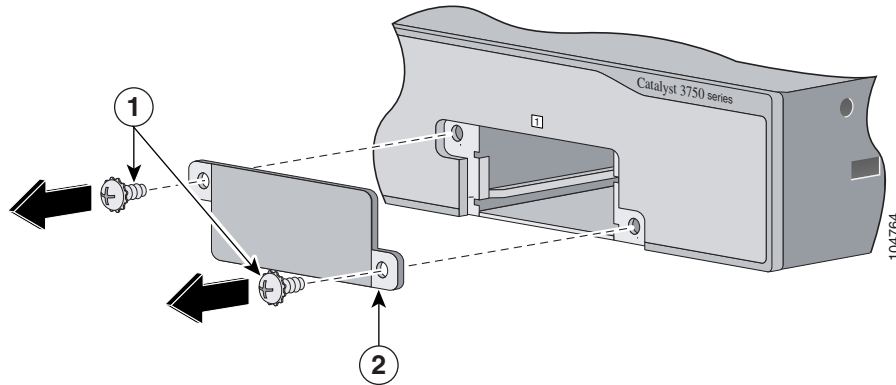
<b>1</b>	Captive installation screw	<b>3</b>	Sending optical bore
<b>2</b>	Optical bore dust plug	<b>4</b>	Receiving optical bore

To insert a XENPAK module, follow these steps:

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.

- Step 2** Remove the two Phillips-head retaining screws from the XENPAK module slot cover, and store them for later use.
- Step 3** Remove the cover, as shown in [Figure 2-51](#).

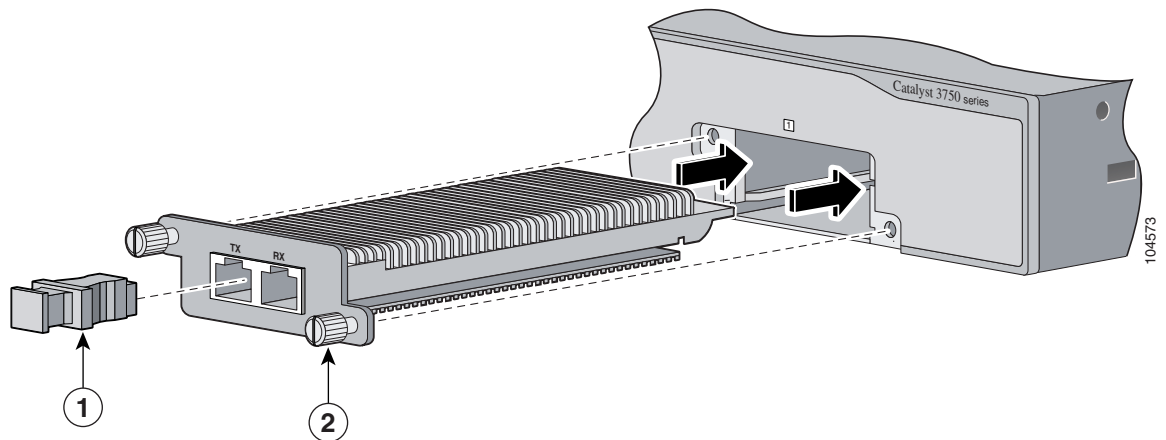
**Figure 2-51** Removing the XENPAK Module Slot Cover



1	Phillips-head screw	2	Module slot cover
---	---------------------	---	-------------------

- Step 4** Remove the XENPAK module from the protective packaging.
- Step 5** Align the XENPAK module with the guide rails inside the module slot, and slide the module into the opening until the back of the XENPAK faceplate is flush with the switch faceplate. (See [Figure 2-52](#).)

**Figure 2-52** Installing a XENPAK Module in the Catalyst 3750G-16TD Switch



1	Optical bore dust plug	2	Captive installation screw
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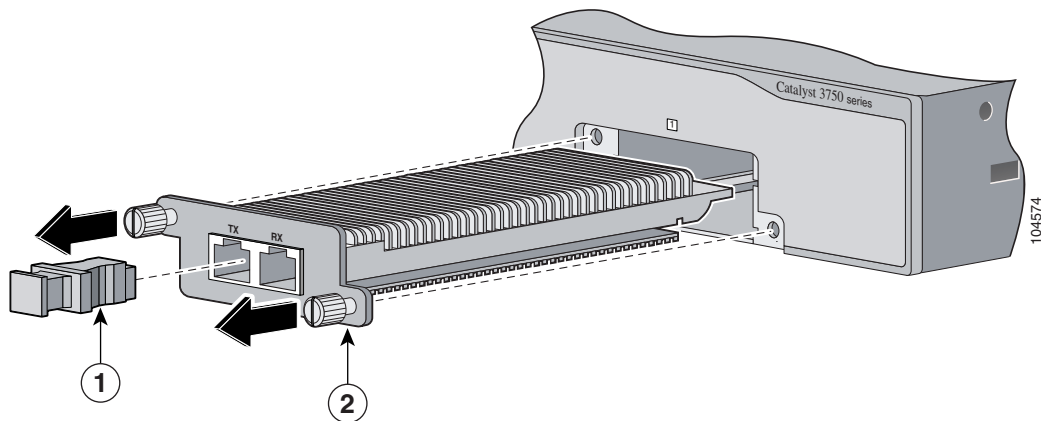
- Step 6** Secure the XENPAK module in place by tightening the two captive installation screws. Do not overtighten the captive screws.

## Removing a XENPAK Module

To remove a XENPAK module, follow these steps:

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.
- Step 2** Disconnect the cable from the XENPAK module. For fiber-optic modules, install the optical bore dust plugs.
- Step 3** Loosen the two captive installation screws that secure the XENPAK module in the slot.
- Step 4** Carefully pull on the two captive installation screws to disconnect the XENPAK module from the slot.
- Step 5** Grasp the edges of the XENPAK module, and carefully slide it out of the slot, as shown in [Figure 2-53](#).

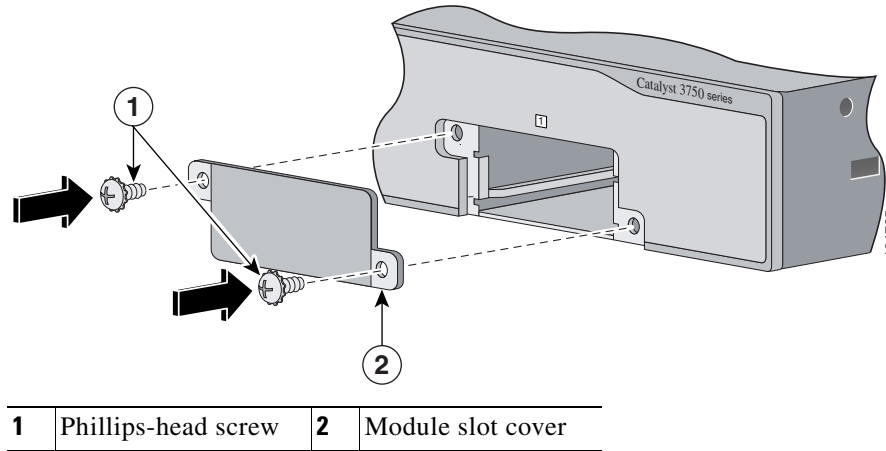
**Figure 2-53** Removing a XENPAK Module



<b>1</b>	Optical bore dust plug	<b>2</b>	Captive installation screw
----------	------------------------	----------	----------------------------

- Step 6** Use two Phillips-head screws to attach the XENPAK module slot cover to the switch front panel, as shown in [Figure 2-54](#).

**Figure 2-54** Replacing the XENPAK Module Slot Cover



## Connecting to the 10/100 and 10/100/1000 Ports

The switch 10/100 and 10/100/1000 ports configure themselves to operate at the speed of attached devices. If the attached ports do not support autonegotiation, you can explicitly set the speed and duplex parameters. Connecting devices that do not autonegotiate or that have their speed and duplex parameters manually set can reduce performance or result in no linkage.

To maximize performance, choose one of these methods for configuring the Ethernet ports:

- Let the ports autonegotiate both speed and duplex.
- Set the port speed and duplex parameters on both ends of the connection.



**Voltages that present a shock hazard may exist on Power over Ethernet (PoE) circuits if interconnections are made using uninsulated exposed metal contacts, conductors, or terminals. Avoid using such interconnection methods, unless the exposed metal parts are located within a restricted access location and users and service people who are authorized within the restricted access location are made aware of the hazard. A restricted access area can be accessed only through the use of a special tool, lock and key or other means of security.** Statement 1072

You can configure the 10/100 and 10/100/1000 ports on the Catalyst 3750-24PS, 3750G-24PS, 3750-48PS, 3750G-48PS, 3750G-24WS-S25, and the 3750G-24WS-S50 switches to either automatically provide PoE when a Cisco IP Phone, Cisco Aironet Access Point, or end device compliant with IEEE 802.3af is connected. Alternatively, you can configure them to never provide PoE, even if an IP phone or an access point is connected. The default setting is Auto. To prevent ESD damage, follow your normal board and component handling procedures.

Use the guidelines in [Table 2-1](#) to select the correct cable for connecting the switch 10/100 and 10/100/1000 ports to other devices. See the “[Cable and Adapter Specifications](#)” section on [page B-5](#) for cable-pinout descriptions.

**Table 2-1 Recommended Ethernet Cables**

Device	Crossover Cable <sup>1</sup>	Straight-Through Cable <sup>1</sup>
Switch to switch	Yes	No
Switch to hub	Yes	No
Switch to computer or server	No	Yes
Switch to router	No	Yes
Switch to IP phone	No	Yes

1. 100BASE-TX and 1000BASE-T traffic requires twisted four-pair, Category 5 or higher cable. 10BASE-T traffic can use Category 3 or Category 4 cable.

You can use the **mdix auto** interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (auto-MDIX) feature. When the auto-MDIX feature is enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100, 10/100/1000, or 1000BASE-T SFP module port on the switch, regardless of the type of device on the other end of the connection.

The auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(18)SE or later. For releases between Cisco IOS Release 12.1(14)EA1 and 12.2(18)SE, the auto-MDIX feature is disabled by default. For configuration information for this feature, see the switch software configuration guide or the switch command reference.

Follow these steps to connect to 10BASE-T, 100BASE-TX or 1000BASE-T devices:

**Caution**

PoE faults are caused when noncompliant cabling or powered devices are connected to a PoE port. Only standard-compliant cabling can be used to connect Cisco pre-standard IP Phones and wireless access points or IEEE 802.3af-compliant devices to PoE ports. A cable or device that causes a PoE fault must be removed from the network.

**Step 1**

When you connect the switch to workstations, servers, routers, and Cisco IP Phones, connect a straight-through cable to an RJ-45 connector on the front panel. (See [Figure 2-55](#).) When you connect the switch to other switches or to repeaters, use a crossover cable. (See the [“Cable and Adapter Specifications”](#) section on page B-5 for cable-pinout descriptions.)

When you connect a switch to 1000BASE-T-compatible devices, be sure to use a twisted four-pair, Category 5 or later cable.

You can connect the Catalyst 3750 switch to a Cisco IP Phone through a straight-through, twisted four-pair Category 5 or later cable. The rear panel of the Cisco IP Phone might have more than one RJ-45 connector. Use the LAN-to-phone connector to connect the Cisco IP phone to the switch. See the Cisco IP Phone documentation for more information about connecting devices to it.

**Note**

Many legacy powered devices, including older Cisco IP phones and access points that do not fully support IEEE 802.3af, might not support PoE when connected to the switches by a crossover cable.

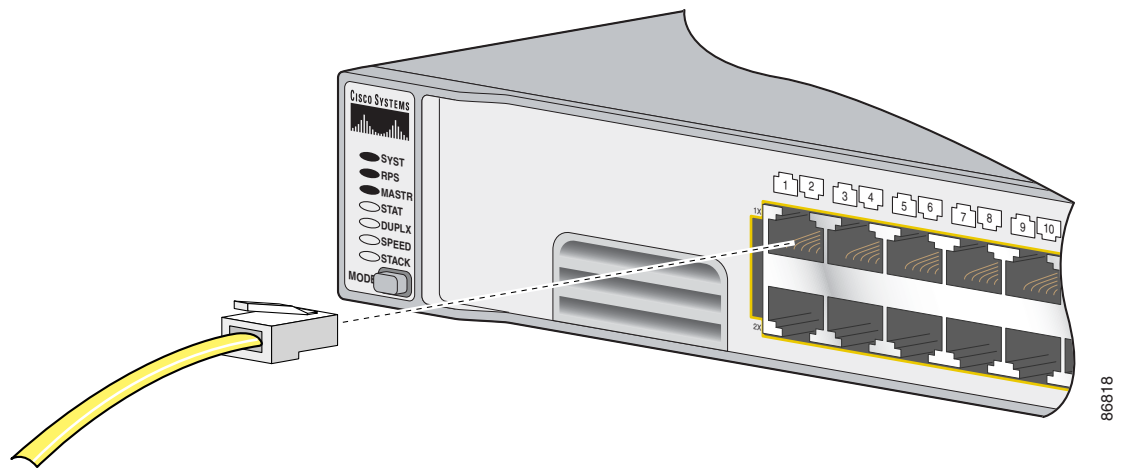
**Step 2** Connect the other end of the cable to an RJ-45 connector on the other device. The port LED turns on when both the switch and the connected device have established link.

The port LED is amber while Spanning Tree Protocol (STP) discovers the topology and searches for loops. This process takes about 30 seconds, and then the port LED turns green. If the port LED does not turn on, the device at the other end might not be turned on, or there might be a cable problem or a problem with the adapter installed in the attached device. See [Chapter 3, “Troubleshooting,”](#) for solutions to cabling problems.

**Step 3** Reconfigure and reboot the connected device if necessary.

**Step 4** Repeat Steps 1 through 3 to connect each device.

**Figure 2-55** Connecting to an Ethernet Port



## Connecting to an SFP Module

This section describes how to connect to SFP modules.

- For instructions on how to connect to fiber-optic SFP modules, see the [“Connecting to 1000BASE-T SFP Modules”](#) section.
- For instructions on how to connect to 1000BASE-T SFP modules, see the [“Connecting to 1000BASE-T SFP Modules”](#) section.
- For instructions on how to install or remove an SFP module, see the [“Installing and Removing SFP Modules”](#) section on page 2-33.

## Connecting to a Fiber-Optic SFP Module

Follow these steps to connect a fiber-optic cable to an SFP module:



**Warning**

**Class 1 laser product.** Statement 1008

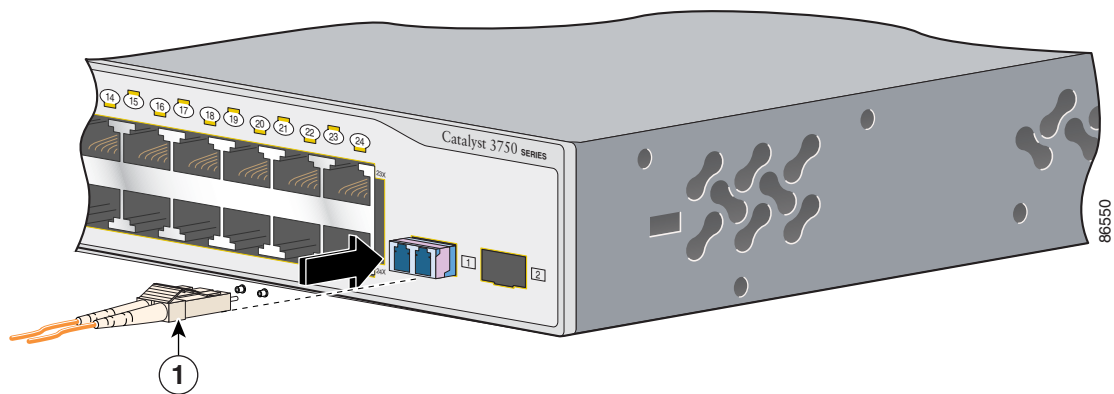
**Caution**

Do not remove the rubber plugs from the SFP module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light.

Before you connect the switch to the SFP module, be sure that you understand the port and cabling stipulations in [“Installation Guidelines” section on page 2-5](#) and in the [“SFP Module Slots” section on page 1-12](#).

- 
- Step 1** Remove the rubber plugs from the module port and fiber-optic cable, and store them for future use.
- Step 2** Insert one end of the fiber-optic cable into the SFP module port (see [Figure 2-56](#)).
- Step 3** Insert the other cable end into a fiber-optic receptacle on a target device.
- Step 4** Observe the port status LED.
- The LED turns green when the switch and the target device have an established link.
  - The LED turns amber while the STP discovers the network topology and searches for loops. This process takes about 30 seconds, and then the port LED turns green.
  - If the LED is off, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device. See [Chapter 3, “Troubleshooting,”](#) for solutions to cabling problems.

**Figure 2-56** Connecting to an SFP Module Port



<b>1</b>	LC connector
----------	--------------

- Step 5** If necessary, reconfigure and restart the switch or target device.

**Caution**

For detailed instructions on removing the SFP modules, see your SFP documentation.



## Connecting to 1000BASE-T SFP Modules

Follow these steps to connect a Category 5 cable to a 1000BASE-T SFP module port (see [Figure 2-57](#)):


**Caution**

To prevent ESD damage, follow your normal board and component handling procedures.

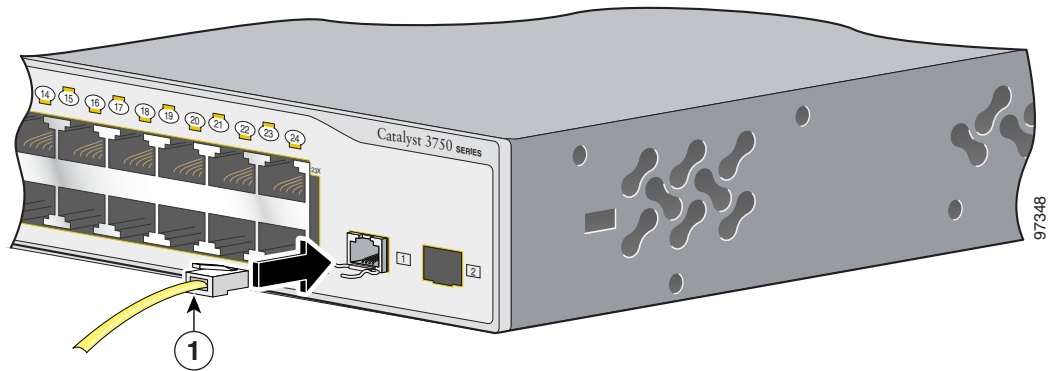
**Step 1**

When you connect the switch to servers, workstations, and routers, insert a four twisted-pair, straight-through cable in the RJ-45 connector. When you connect the switch to other switches or repeaters, insert a four twisted-pair, crossover cable.


**Note**

When you connect the switch to a 1000BASE-T device, be sure to use a four twisted-pair, Category 5 or higher cable.

**Figure 2-57** Connecting to an SFP Module Port



**1** RJ-45 connector

**Step 2** Insert the other cable end in an RJ-45 connector on a target device.

**Step 3** Observe the port status LED.

- The LED turns green when the switch and the target device have an established link.
- The LED turns amber while the STP discovers the network topology and searches for loops. This process takes about 30 seconds, and then the port LED turns green.
- If the LED is off, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device. See [Chapter 3, “Troubleshooting,”](#) for solutions to cabling problems.

**Step 4** If necessary, reconfigure and restart the switch or target device.

## Connecting to a XENPAK Module

The 10-Gigabit Ethernet XENPAK modules are referred to as 10-Gigabit Ethernet module ports in the switch software documentation.

Make sure that the XENPAK module is fully inserted into the module slot and that the captive installation screws are fully tightened before attaching the fiber-optic interface cable connector to the XENPAK module connector.

Follow these steps to connect a fiber-optic cable to a XENPAK module:

**Warning**

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**Class 1 laser product.** Statement 1008

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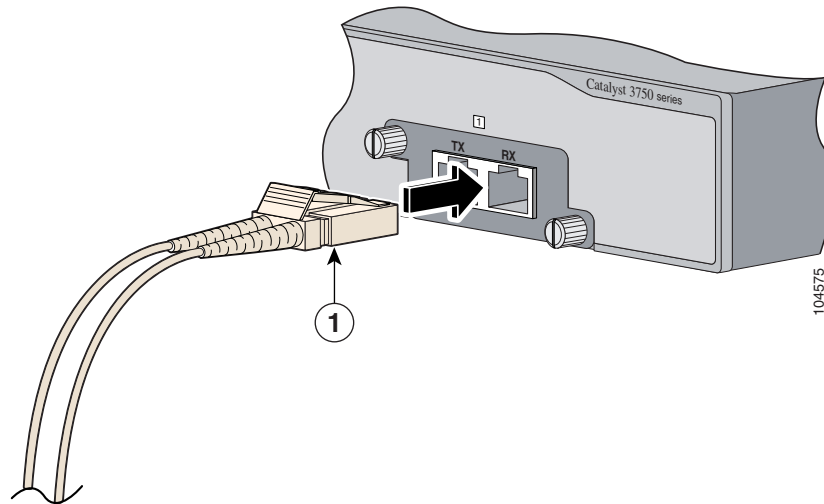
**Caution**

---

Do not remove the rubber plugs from the XENPAK module ports or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the XENPAK module ports and cables from contamination and ambient light.

---

- 
- Step 1** Remove the rubber plugs from the XENPAK module ports and the fiber-optic cable, and store them for future use.
- Step 2** Align the fiber-optic cable SC connector with the XENPAK module connector, so that transmit (TX) on the cable meets receive (RX) on the XENPAK module connector, and RX on the cable meets TX on the XENPAK module.
- Step 3** Insert the fiber-optic cable connector into the XENPAK module ports (see [Figure 2-58](#)).
- Step 4** Insert the other cable end into a fiber-optic receptacle on a target device.
- Step 5** Observe the XENPAK module port status LED.
- The LED turns green when the switch and the target device have an established link.
  - The LED turns amber while the STP discovers the network topology and searches for loops. This process takes about 30 seconds, and then the port LED turns green.
  - If the LED is off, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device. See [Chapter 3, “Troubleshooting,”](#) for solutions to cabling problems.

**Figure 2-58** Connecting to a XENPAK Module Port

1	SC connector
---	--------------

**Step 6** If necessary, reconfigure and restart the switch or target device.

---

## Where to Go Next

If the default configuration is satisfactory, the switch needs no further configuration. You can use any of these management options to change the default configuration:

- Start the device manager, which is in the switch memory, to manage individual and standalone switches. This is an easy-to-use web interface that offers quick configuration and monitoring. You can access the device manager from anywhere in your network through a web browser. For more information, see the device manager online help.
- Start the Network Assistant application, which is described in the *Getting Started with Cisco Network Assistant* guide. Through this GUI, you can configure and monitor a switch cluster or an individual switch.
- Use the CLI to configure the switch as a member of a cluster or as an individual switch from the console. See the *Catalyst 3750 Switch Command Reference* on Cisco.com for information on using the CLI with a Catalyst 3750 switch.
- Start an SNMP application such as the CiscoView application.





# CHAPTER 3

## Troubleshooting

---

The LEDs on the front panel provide troubleshooting information about the switch. They show failures in the power-on self-test (POST), port-connectivity problems, and overall switch performance. For a full description of the switch LEDs, see the [“LEDs” section on page 1-13](#).

You can also get statistics from the browser interface, from the command-line interface (CLI), or from a Simple Network Management Protocol (SNMP) workstation. See the software configuration guide, the switch command reference guide on Cisco.com, or the documentation that came with your SNMP application for details.

This chapter describes these topics for troubleshooting problems:

- [Diagnosing Problems, page 3-1](#)
- [Clearing the Switch IP Address and Configuration, page 3-6](#)
- [Replacing a Failed Stack Member, page 3-6](#)
- [Finding the Switch Serial Number, page 3-7](#)

## Diagnosing Problems

The LEDs on the front panel provide troubleshooting information about the switch. They show power-on self-test (POST) failures, port-connectivity problems, and overall switch performance. You can also get statistics from the CLI or from an SNMP workstation. See the software configuration guide and the switch command reference on Cisco.com or the documentation that came with your SNMP application for more information.

This section includes these troubleshooting topics:

- [“Verify Switch POST Results” section on page 3-2](#)
- [“Monitor Switch LEDs” section on page 3-2](#)
- [“Verify Switch Connections” section on page 3-2](#)
- [“Monitor Switch Performance” section on page 3-5](#)

## Verify Switch POST Results

As the switch powers on, it begins the POST, a series of tests that runs automatically to ensure that the switch functions properly. It might take several minutes for the switch to complete POST.

When the switch begins POST, the system LED slowly blinks green. When POST completes, the system LED blinks amber. If POST fails, the system LED remains amber. If POST completes successfully, the system LED rapidly blinks green.

**Note**

---

POST failures are usually fatal. Contact your Cisco technical support representative if your switch does not pass POST.

---

## Monitor Switch LEDs

You must have physical access to the switch to do this. Look at the port LEDs for troubleshooting information about the switch. See the “LEDs” section on page 1-7 for a description of the LED colors and their meanings.

## Verify Switch Connections

Review this section when troubleshooting switch connectivity problems.

## Bad or Damaged Cable

Always look at the cable for marginal damage or failure. A cable might connect at the physical layer but then cause packet corruption because of subtle damage to its wiring or connectors. You can identify this situation because the port will have many packet errors, or the port constantly loses and regains link. In these situations:

- Change the copper or fiber-optic cable with a known, good cable if necessary.
- Look for broken or missing pins on cable connectors.
- Rule out any insufficient patch panel connections or media convertors between the source and the destination. If possible, bypass the patch panel or eliminate faulty media convertors, such as fiber-optic-to-copper convertors.
- Try using the cable in another port or interface to see if the problem also exists there.

## Ethernet and Fiber Cables

Make sure that you have the correct cable type for the connection:

- For Ethernet, use Category 3 copper cable for 10 Mb/s unshielded twisted pair (UTP) connections. Use either Category 5, Category 5e, or Category 6 UTP for 10/100 or 10/100/1000 Mb/s connections.
- For fiber-optic connectors, verify that you have the correct cable for the distance and port type. Make sure that the ports on the connected device match and that they use the same type of encoding, optical frequency, and fiber type. For more information about cabling, see [Appendix A, “Connector and Cable Specifications.”](#)

- For copper connections, determine if a crossover cable was used when a straight-through cable was required or the reverse. Enable auto-MDIX on the switch, or replace the cable.

## Link Status

Verify that both sides have link. A single broken wire or one shutdown port can cause one side to show link, but the other side does not have link.

A link LED does not guarantee that the cable is fully functional. The cable might have encountered physical stress that causes it to function at a marginal level. If the link light for the port does not come on:

- Connect the cable from the switch to a known, good device.
- Make sure that both ends of the cable are connected to the correct ports.
- Verify that both devices have power.
- Verify that you are using the correct cable type. See [Appendix A, “Connector and Cable Specifications,”](#) for more information.
- Look for loose connections. Sometimes a cable appears to be seated, but is not. Disconnect and then reconnect the cable.

## PoE Connections

When a powered device is connected to PoE port, but no power is received, you should:

- Use the Mode button to show the PoE status for all ports. See [Table 1-5 on page 1-18](#) for a description of the LEDs and their meanings.
- Monitor the port status by using the **show interfaces** privileged EXEC command to check the port error-disabled, disabled, or shutdown status. Re-enable the port if necessary.
- Verify that the power supply installed in the switch meets the power requirements of your connected devices. See the [“Power Connectors” section on page 1-25](#) for more information.
- Check the cable type. Many legacy powered devices, including older Cisco IP phones and access points that do not fully support IEEE 802.3af, might not support PoE when connected to the switch by a crossover cable. Replace the crossover cable with a straight-through cable.



### Caution

---

PoE faults are caused when noncompliant cabling or powered devices are connected to a PoE port. Only standard-compliant cabling can be used to connect Cisco pre-standard IP phones and wireless access points or IEEE 802.3af-compliant devices to PoE ports. (You must remove a cable or device that causes a PoE fault from the network.)

---

## Transceiver Module Port Issues

Use only Cisco SFP modules on the switch. Each Cisco module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the module meets the requirements for the switch. Check these items:

- Bad or incorrect SFP module. Exchange the suspect module with a known, good module. Verify that this module supports this platform. See the [“SFP Modules” section on page 1-6](#) for a list of supported SFP modules.

- Bad or incorrect XENPAK module. Replace the suspect module with a known good module. Verify that the platform supports the module. See the [Table B-2 on page B-4](#) for a list of supported XENPAK modules.
- Use the **show interfaces** privileged EXEC command to check the port or module error-disabled, disabled, or shutdown status. Re-enable the port if necessary.
- Make sure that all you have properly cleaned and securely connected all fiber-optic connections.

## Port and Interface Settings

An obvious but sometimes overlooked cause of port connectivity failure is a disabled port. Verify that the port or interface is not disabled or for some reason powered off. If a port or interface is manually shut down on one or the other side of the link, the link does not come up until you re-enable the port. Use the **show interfaces** privileged EXEC command to verify the port or interface error-disabled, disabled, or shutdown status on both sides of the connection. If necessary, re-enable the port or the interface.

## Ping the End Device

Verify the end device connection by first pinging it from the directly connected switch, and then work your way back port by port, interface by interface, trunk by trunk, until you find the source of the connectivity issue. Make sure that each switch can identify the end device MAC address in its Content-Addressable Memory (CAM) table.

## Spanning Tree Loops

Spanning Tree Protocol (STP) loops can cause serious performance issues that might appear to be port or interface problems. In this situation, the switch bandwidth is used repeatedly by the same frames, crowding out legitimate traffic.

A unidirectional link can cause loops. This occurs when the traffic that the switch sends is received by its neighbor, but the switch does not receive the traffic that is sent from the neighbor. A broken fiber-optic cable, other cabling, or a port issue could cause this one-way communication.

You can enable the UniDirectional Link Detection (UDLD) protocol on the switch to help identify difficult-to-find unidirectional link problems. UDLD supports a normal mode of operation (the default) and an aggressive mode. In normal mode, UDLD detects unidirectional links because of incorrectly connected interfaces on fiber-optic connections. In aggressive mode, UDLD also detects unidirectional links caused by one-way traffic on fiber-optic and twisted-pair links and by incorrectly connected interfaces on fiber-optic links. For information about enabling UDLD on the switch, see the “Understanding UDLD” section in the software configuration guide.



## Monitor Switch Performance

Review this section when you troubleshoot switch performance problems.

### Speed, Duplex, and Autonegotiation

If the port statistics show a large number of alignment errors, frame check sequence (FCS), or late-collisions errors, a speed or duplex mismatch might be the problem.

A common issue with speed and duplex occurs when the duplex settings are mismatched between two switches, between a switch and a router, or between the switch and a workstation or server. This can happen when you manually set the speed and duplex or because of autonegotiation issues between the two devices.

These circumstances can result in a mismatch:

- A manually set speed or duplex parameter is different from the manually set speed or duplex parameter on the connected port.
- A port is set to autonegotiate, and the connected port is set to full duplex with no autonegotiation.

To maximize switch performance and to ensure a link, follow one of these guidelines when you set or change the settings for duplex and speed:

- Let both ports autonegotiate both speed and duplex.
- Manually set the speed and duplex parameters for the ports on both ends of the connection.
- If a remote device does not autonegotiate, configure the duplex settings on the two ports to match. The speed parameter can adjust itself even if the connected port does not autonegotiate.

### Autonegotiation and NIC Cards

Problems sometimes occur between the switch and third-party network interface cards (NICs). By default, the switch ports and interfaces are set to autonegotiate. It is common for devices such as laptop computers or other devices to also be set to autonegotiate, yet sometimes autonegotiation issues occur.

To troubleshoot autonegotiation problems, try to manually set both sides of the connection. If this does not solve the problem, the firmware or software on your NIC card might be causing the problem. Upgrade the NIC card driver to the latest version available from the manufacturer.

### Cabling Distance

If the port statistics show excessive FCS, late-collision, or alignment errors, verify that the cable distance from the switch to the connected device meets the recommended guidelines. See the [“Cable and Adapter Specifications” section on page A-4](#) for cabling guidelines.

## Clearing the Switch IP Address and Configuration

If you have configured a new switch with an incorrect IP address, or if all of the switch LEDs start blinking when you try to enter Express Setup mode, you can clear the IP address that is configured on the switch.



### Caution

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This procedure clears the IP address and all configuration information that is stored on the switch. Do not follow this procedure unless you want to completely reconfigure the switch.

---

Follow these steps to return your switch to the factory default settings:

1. Press and hold the Mode button (see [Figure 1-15 on page 1-14](#), [Figure 1-16 on page 1-15](#), and [Figure 1-17 on page 1-15](#)).

The switch LEDs begin blinking after about 2 seconds. If the switch is not configured, the LEDs above the mode button turn green. You can omit this step and run Express Setup to configure the switch.

2. Continue holding down the Mode button. The LEDs stop blinking after an additional 8 seconds, and then the switch reboots.

The switch now behaves like an unconfigured switch. You can configure the switch by using Express Setup as described in the switch getting started guide that is included with the switch.

You can also configure the switch by using the CLI setup procedure described in [Appendix D, “Configuring the Switch with the CLI-Based Setup Program.”](#)

## Replacing a Failed Stack Member

If you need to replace a failed stack member, you can hot swap or replace the switch by following this procedure:

- 
- Step 1** Get a replacement switch that has the same model number as the failed switch.
  - Step 2** Power off the failed switch.
  - Step 3** Make sure the replacement switch is powered off, and then connect the replacement switch to the stack.



### Note

---

If you had previously manually set the member numbers for any members in the stack, you need to manually assign the replacement switch with the same member number as the failed switch. To assign the member number manually, see the switch software configuration guide.

---

- Step 4** Make the same Ethernet and Gigabit Ethernet connections on the replacement switch (as were on the failed switch).
- Step 5** Power on the replacement switch.

**Note**

If you add a replacement switch that has a later Cisco IOS release to the running stack, the replacement switch automatically downgrades to the release that the stack is running. The replacement switch, rather than the existing switches, reboots. The replacement switch then has the same configuration for all the interfaces as those of the failed switch.

## Finding the Switch Serial Number

If you contact Cisco Technical Assistance, you need to know the serial number of your switch. Use these figures to locate the serial number on your switch. You can also use the **show version** command to get the serial number.

- [Figure 3-1, Catalyst 3750G-12S and 3750-12S-SD Switch Serial Number Location](#)
- [Figure 3-2, Catalyst 3750G-16TD Switch Serial Number Location](#)
- [Figure 3-3, Catalyst 3750-24PS Switch Serial Number Location](#)
- [Figure 3-4, Catalyst 3750G-24PS and 3750G-24TS-1U Switches Serial Number Location](#)
- [Figure 3-5, Catalyst 3750G-24TS Switch Serial Number Location](#)
- [Figure 3-6, Catalyst 3750-24TS Switch Serial Number Location](#)
- [Figure 3-7, Catalyst 3750-24PS Switch Serial Number Location](#)
- [Figure 3-8, Catalyst 3750G-24WS Switch Serial Number Location](#)
- [Figure 3-9, Catalyst 3750-48PS Switch Serial Number Location](#)
- [Figure 3-10, Catalyst 3750G-48PS and 3750G-48TS Switches Serial Number Location](#)
- [Figure 3-11, Catalyst 3750-48TS Switch Serial Number Location](#)

**Figure 3-1** Catalyst 3750G-12S and 3750-12S-SD Switch Serial Number Location



**Figure 3-2** Catalyst 3750G-16TD Switch Serial Number Location



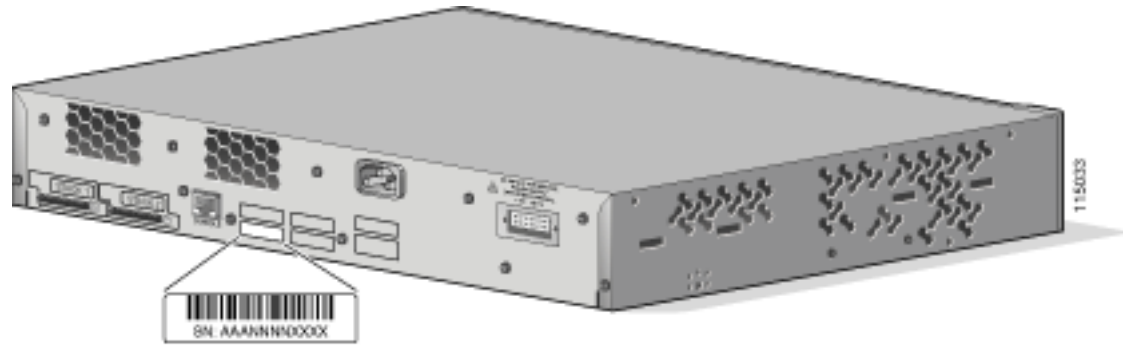
**Figure 3-3** Catalyst 3750-24PS Switch Serial Number Location



**Figure 3-4** Catalyst 3750G-24PS and 3750G-24TS-1U Switches Serial Number Location



**Figure 3-5** Catalyst 3750G-24TS Switch Serial Number Location



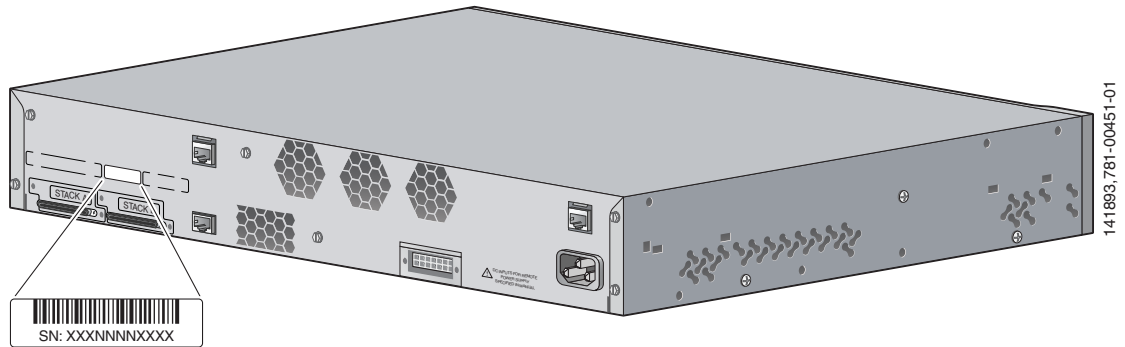
**Figure 3-6** Catalyst 3750-24TS Switch Serial Number Location



**Figure 3-7** Catalyst 3750-24PS Switch Serial Number Location



**Figure 3-8 Catalyst 3750G-24WS Switch Serial Number Location**



**Figure 3-9 Catalyst 3750-48PS Switch Serial Number Location**



**Figure 3-10 Catalyst 3750G-48PS and 3750G-48TS Switches Serial Number Location**



**Figure 3-11 Catalyst 3750-48TS Switch Serial Number Location**









# APPENDIX **A**

## Technical Specifications

---

This appendix lists the switch technical specifications in these tables:

- [Specifications for the Catalyst 3750G-12S Switch, Table A-1 on page A-2](#)
- [Specifications for the Catalyst 3750G-12S-SD Switch, Table A-2 on page A-2](#)
- [Specifications for the Catalyst 3750-24FS Switch, Table A-3 on page A-3](#)
- [Specifications for the Catalyst 3750-24TS Switch, Table A-4 on page A-4](#)
- [Specifications for the Catalyst 3750G-24T Switch, Table A-5 on page A-5](#)
- [Specifications for the Catalyst 3750-24PS Switch, Table A-6 on page A-6](#)
- [Specifications for the Catalyst 3750G-24PS Switch, Table A-7 on page A-7](#)
- [Specifications for the Catalyst 3750-48PS Switch, Table A-8 on page A-8](#)
- [Specifications for the Catalyst 3750G-48PS Switch, Table A-9 on page A-9](#)
- [Specifications for the Catalyst 3750G-16TD Switch, Table A-10 on page A-10](#)
- [Specifications for the Catalyst 3750G-24TS Switch, Table A-11 on page A-11](#)
- [Specifications for the Catalyst 3750G-24TS-1U Switch, Table A-12 on page A-12](#)
- [Specifications for the Catalyst 3750-48TS Switch, Table A-13 on page A-13](#)
- [Specifications for the Catalyst 3750G-48TS Switch, Table A-14 on page A-13](#)
- [Specifications for the Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switch, Table A-14 on page A-13](#)

**Table A-1** Specifications for the Catalyst 3750G-12S Switch

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 0.6 to 1.2 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sup>DC</sup> @ 13 A
Power consumption	120 W, 409 BTUs per hour
Power rating	0.120 kVA
<b>Physical Dimensions</b>	
Weight	10 lb (4.6 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm)

**Table A-2** Specifications for the Catalyst 3750G-12S-SD Switch

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
DC input voltage	-36 to -72 VDC 3 to 1.5 A
Power consumption	94 W, 321 BTUs per hour
<b>Physical Dimensions</b>	
Weight	10 lb (4.6 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm)

**Table A-3 Specifications for the Catalyst 3750-24FS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 1.5 to 3 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 8.5 A
Power consumption	70 W, 240 BTUs per hour
Power rating	0.070 kVA
<b>Physical Dimensions</b>	
Weight	9 lb (4.1 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm)

**Table A-4 Specifications for the Catalyst 3750-24TS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 0.6 to 1.2 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sup>DC</sup> @ 8.5 A
Power consumption	50 W, 171 BTUs per hour
Power rating	0.083 kVA
<b>Physical Dimensions</b>	
Weight	8 lb (3.6 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm)

**Table A-5**      **Specifications for the Catalyst 3750G-24T Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 0.9 to 1.6 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 13 A
Power consumption	165 W, 563 BTUs per hour
Power rating	0.165 kVA
<b>Physical Dimensions</b>	
Weight	10 lb (4.6 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm)

**Table A-6 Specifications for the Catalyst 3750-24PS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 2.9 to 5.5 A, 50 to 60 Hz
DC input voltage for RPS 2300 and 675	+12 V <sup>DC</sup> @ 7.5 A and -48 V <sup>DC</sup> @ 7.8 A
Power consumption	495 W
Power dissipation	125 W, 426 BTUs per hour
Power rating	0.495 kVA
<b>Power over Ethernet</b>	
15.4 W per port maximum, 370 W switch maximum	
<b>Physical Dimensions</b>	
Weight	11.3 lb (5.1 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm)

**Table A-7 Specifications for the Catalyst 3750G-24PS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 4 to 8 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 14 A and -48 V <sub>DC</sub> @ 7.8 A
Power consumption	520 W
Power dissipation	170 W, 534 BTUs per hour
Power rating	0.52 kVA
<b>Power over Ethernet</b>	
Range from 4 to 15.4 W per port, up to 370 W switch maximum	
<b>Physical Dimensions</b>	
Weight	13.5 lb (6.1 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm)

**Table A-8 Specifications for the Catalyst 3750-48PS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 4 to 8 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sup>---</sup> @ 7.5 A and -48 V <sup>---</sup> @ 7.8 A
Power consumption	540 W
Power dissipation	170 W, 580 BTUs per hour
Power rating	0.54 kVA
<b>Power over Ethernet</b>	
Range from 4 to 15.4 W per port, up to 370 W switch maximum	
<b>Physical Dimensions</b>	
Weight	13.2 lb (6 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 14.8 in. (4.4 x 44.5 x 37.8 cm)



**Table A-9 Specifications for the Catalyst 3750G-48PS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 4 to 8 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 14 A and -48 V <sub>DC</sub> @ 7.8 A
Power consumption	560 W
Power dissipation	220 W, 690 BTUs per hour
Power rating	0.56 kVA
<b>Power over Ethernet</b>	
Range from 4 to 15.4 W per port, up to 370 W switch maximum	
<b>Physical Dimensions</b>	
Weight	15.5 lb (7 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm)

**Table A-10 Specifications for the Catalyst 3750G-16TD Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 0.9 to 1.6 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sup>DC</sup> @ 17 A
Power consumption	180 W, 615 BTUs per hour
Power rating	0.180 kVA
<b>Physical Dimensions</b>	
Weight	12.5 lb (5.7 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm)

**Table A-11 Specifications for the Catalyst 3750G-24TS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 1.5 to 2.3 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 17 A
Power consumption	190 W, 650 BTUs per hour
Power rating	0.190 kVA
<b>Physical Dimensions</b>	
Weight	12.5 lb (5.7 kg)
Dimensions (H x W x D)	2.59 x 17.5 x 11.6 in. (6.6 x 44.5 x 29.5 cm)

**Table A-12 Specifications for the Catalyst 3750G-24TS-1U Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 1.5 to 3 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sup>---</sup> @ 10.5 A
Power consumption	100 W
Power dissipation	100 W, 314 BTUs per hour
Power rating	0.10 kVA
<b>Physical Dimensions</b>	
Weight	12 lb (5.5 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm)

**Table A-13 Specifications for the Catalyst 3750-48TS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 0.6 to 1.2 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 8.5 A
Power consumption	75 W, 256 BTUs per hour
Power rating	0.075 kVA
<b>Physical Dimensions</b>	
Weight	9.1 lb (4.1 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm)

**Table A-14 Specifications for the Catalyst 3750G-48TS Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 1.5 to 3 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+12 V <sub>DC</sub> @ 17.5 A
Power consumption	160 W
Power dissipation	160 W, 500 BTUs per hour
Power rating	0.16 kVA
<b>Physical Dimensions</b>	
Weight	14 lb (6.4 kg)
Dimensions (H x W x D)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm)

**Table A-15 Specifications for the Catalyst 3750G-24WS-S25 and 3750G-24WS-S50 Switch**

<b>Environmental Ranges</b>	
Operating temperature	32 to 113°F (0 to 45°C)
Storage temperature	-13 to 158°F (-25 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
<b>Power Requirements</b>	
AC input voltage	100 to 240 VAC (autoranging) 4 to 8 A, 50 to 60 Hz
DC input voltages for RPS 2300 and 675	+ 12 V <sup>DC</sup> @ 14 A and -48 V <sup>DC</sup> @ 7.8 A
Power consumption	520 W
Power dissipation	190 W, 648 BTUs per hour
Power rating	0.52 kVA
<b>Power over Ethernet</b>	
Range from 4 to 15.4 W per port, up to 370 W switch maximum	
<b>Physical Dimensions</b>	
Weight	21 lb (9.5 kg)
Dimensions (H x W x D)	3.5 x 17.5 x 14.5in. (8.9 x 44.5 x 36.8 cm)



# APPENDIX **B**

## Connector and Cable Specifications

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This appendix describes the Catalyst 3750 switch ports and the cables and adapters that you use to connect the switch to other devices. This appendix includes these sections:

- [“Connector Specifications” section on page B-1](#)
- [“Cable and Adapter Specifications” section on page B-5](#)

### Connector Specifications

These sections describe the connectors used with the Catalyst 3750 switches:

- [“10/100 and 10/100 /1000 Ports” section on page B-2](#)
- [“100BASE-FX Ports” section on page B-2](#)
- [“SFP Module Ports” section on page B-3](#)
- [“XENPAK Module Ports \(Catalyst 3750G-16TD Switch\)” section on page B-4](#)
- [“Console Port” section on page B-5](#)

## 10/100 and 10/100 /1000 Ports

The 10/100 and 10/100/1000 Ethernet ports on Catalyst 3750 switches use standard RJ-45 connectors and Ethernet pinouts with internal crossovers. [Figure B-2](#) and [Figure B-1](#) show the pinouts.

**Figure B-1** 10/100 Port Pinouts

Pin	Label	1	2	3	4	5	6	7	8
1	RD+								
2	RD-								
3	TD+								
4	NC								
5	NC								
6	TD-								
7	NC								
8	NC								

HE318

**Figure B-2** 10/100/1000 Port Pinouts

Pin	Label	1	2	3	4	5	6	7	8
1	TP0+								
2	TP0-								
3	TP1+								
4	TP2+								
5	TP2-								
6	TP1-								
7	TP3+								
8	TP3-								

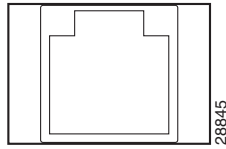
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## 100BASE-FX Ports

The 100BASE-FX ports use MT-RJ connectors, as shown in [Figure B-3](#). The 100BASE-FX ports use 50/125- or 62.5/125-micron multimode fiber-optic cabling.

You can connect a 100BASE-FX port to an SC or ST port on a target device by using one of the MT-RJ fiber-optic patch cables listed in [Table B-1](#). Use the Cisco part numbers in [Table B-1](#) to order the patch cables that you need.

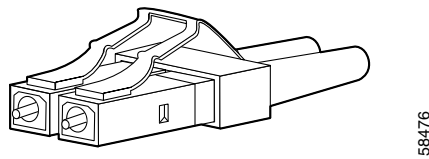


**Figure B-3** *MT-RJ Connector***Table B-1** *MT-RJ Patch Cables for 100BASE-FX Connections*

Type	Cisco Part Number
1-meter, MT-RJ-to-SC multimode cable	CAB-MTRJ-SC-MM-1M
3-meter, MT-RJ-to-SC multimode cable	CAB-MTRJ-SC-MM-3M
5-meter, MT-RJ-to-SC multimode cable	CAB-MTRJ-SC-MM-5M
1-meter, MT-RJ-to-ST multimode cable	CAB-MTRJ-ST-MM-1M
3-meter, MT-RJ-to-ST multimode cable	CAB-MTRJ-ST-MM-3M
5-meter, MT-RJ-to-ST multimode cable	CAB-MTRJ-ST-MM-5M

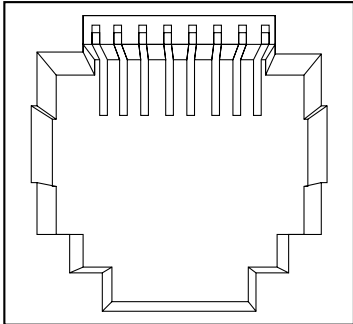
## SFP Module Ports

The Catalyst 3750 switch uses SFP modules for fiber-optic and copper uplink ports. See the Catalyst 3750 release notes for a list of supported SFP modules.

**Figure B-4** *Fiber-Optic SFP Module LC Connector***Warning**

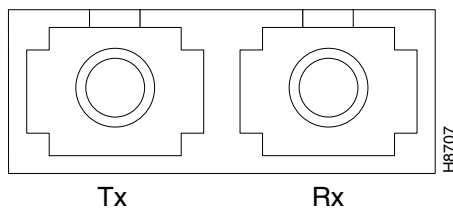
**Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.** Statement 1051

**Figure B-5** Copper SFP Module RJ-45 Connector

Pin	Label	1 2 3 4 5 6 7 8
1	TP0+	
2	TP0-	
3	TP1+	
4	TP2+	
5	TP2-	
6	TP1-	
7	TP3+	
8	TP3-	

## XENPAK Module Ports (Catalyst 3750G-16TD Switch)

The Catalyst 3750G-16TD switch uses XENPAK modules for 10-Gigabit fiber-optic connections to networks. See the Catalyst 3750 release notes for a list of supported XENPAK modules. Fiber-optic XENPAK modules use SC connectors, as shown in [Figure B-6](#).

**Figure B-6** Fiber-Optic XENPAK Module SC Connector**Warning**

**Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.**

[Table B-2](#) lists the XENPAK modules that the Catalyst 3750G-16TD switch supports.

**Table B-2** Catalyst 3750G-16TD Switch Supported XENPAK Modules

XENPAK	Wavelength	Connector and Cable Type	Maximum Distance
C3-XENPAK-10GB-LR	1310 nm	SC, SMF	6.2 miles (10 km)
XENPAK-10GB-ER	1550 nm	SC, SMF	24.85 miles (40 km)
C3-XENPAK-10GB-SR	850 nm	SC; FDDI <sup>1</sup> grade MMF SC; OM3 MMF	85.3 feet (26 m) 984.25 feet (300 m)

1. FDDI = fiber distributed data interface

For more information about XENPAK modules, see your XENPAK module documentation.



**Note**

The 10-Gigabit Ethernet XENPAK modules are referred to as 10-Gigabit Ethernet module ports in the software documentation.

## Console Port

The console port uses an 8-pin RJ-45 connector, which is described in [Table B-4](#) and [Table B-5](#). The supplied RJ-45-to-DB-9 adapter cable is used to connect the console port of the switch to a console PC. You need to provide a RJ-45-to-DB-25 female DTE adapter if you want to connect the switch console port to a terminal. You can order a kit (part number ACS-DSBUASYN=) containing that adapter from Cisco. For console port and adapter pinout information, see [Table B-4](#) and [Table B-5](#).

## Cable and Adapter Specifications

These sections describe the cables and adapters used with Catalyst 3750 switches:

- [SFP Module Cable Specifications, page B-5](#)
- [Two Twisted-Pair Cable Pinouts, page B-6](#)
- [Four Twisted-Pair Cable Pinouts for 10/100 Ports, page B-7](#)
- [Identifying a Crossover Cable, page B-8](#)
- [Four Twisted-Pair Cable Pinouts for 1000BASE-T Ports, page B-9](#)
- [Crossover Cable and Adapter Pinouts, page B-9](#)

## SFP Module Cable Specifications

[Table B-3](#) lists the cable specifications for the fiber-optic SFP module connections. Each port must match the wave-length specifications on the other end of the cable, and for reliable communications, the cable must not exceed the required cable length. Copper 1000BASE-T SFP transceivers use standard four twisted-pair, Category 5 or greater cable at lengths up to 328 feet (100 meters).

**Table B-3** Fiber-Optic SFP Module Port Cabling Specifications

SFP Module	Wavelength (nanometers)	Fiber Type	Core Size/Cladding Size (micron)	Modal Bandwidth (MHz/km) <sup>1</sup>	Cable Distance
100BASE-BX (GLC-FE-100BX-D GLC-FE-100BX-U)	1310 TX 1550 RX	SMF	G.652 <sup>2</sup>	—	32,810 feet (10 km)
100BASE-FX (GLC-GE-100FX)	1310	MMF	50/125 62.5/125	500 500	6,562 feet (2 km) 6,562 feet (2 km)
100BASE-FX (GLC-FE-100FX)	1310	MMF	50/125 62.5/125	500 500	6,562 feet (2 km) 6,562 feet (2 km)
100BASE-LX (100BASE-LX10)	1310	SMF	G.652 <sup>2</sup>	—	32,810 feet (10 km)

Table B-3 Fiber-Optic SFP Module Port Cabling Specifications (continued)

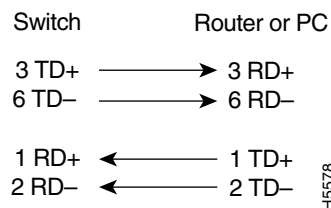
SFP Module	Wavelength (nanometers)	Fiber Type	Core Size/Cladding Size (micron)	Modal Bandwidth (MHz/km) <sup>1</sup>	Cable Distance
1000BASE-BX10-D (GLC-BX-D)	1490 TX 1310 RX	SMF	G.652 <sup>2</sup>	—	32,810 feet (10 km)
1000BASE-BX10-U (GLC-BX-U)	1310 TX 1490 RX	SMF	G.652 <sup>2</sup>	—	32,810 feet (10 km)
1000BASE-SX (GLC-SX-MM)	850	MMF	62.5/125 62.5/125 50/125 50/125	160 200 400 500	722 feet (220 m) 902 feet (275 m) 1640 feet (500 m) 1804 feet (550 m)
1000BASE-LX/LH (GLC-LH-SM)	1310	MMF <sup>3</sup>  SMF	62.5/125 50/125 50/125 G.652 <sup>2</sup>	500 400 500 —	1804 feet (550 m) 1804 feet (550 m) 1804 feet (550 m) 32,810 feet (10 km)
1000BASE-ZX (GLC-ZX-SM)	1550	SMF	G.652 <sup>2</sup>	—	43.4 to 62 miles (70 to 100 km) <sup>4</sup>
CWDM	1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610	SMF	G.652 <sup>2</sup>	—	62 miles (100 km)

1. Modal bandwidth applies only to multimode fiber.
2. A mode-field diameter/cladding diameter = 9 micrometers/125 micrometers
3. A mode-conditioning patch cord is required. Using an ordinary patch cord with MMF, 1000BASE-LX/LH SFP modules, and a short link distance can cause transceiver saturation, resulting in an elevated bit error rate (BER). When using the LX/LH SFP module with 62.5-micron diameter MMF, you must also install a mode-conditioning patch cord between the SFP module and the MMF cable on both the sending and receiving ends of the link. The mode-conditioning patch cord is required for link distances greater than 984 feet (300 m).
4. 1000BASE-ZX SFP modules can send data up to 62 miles (100 km) by using dispersion-shifted SMF or low-attenuation SMF; the distance depends on the fiber quality, the number of splices, and the connectors.

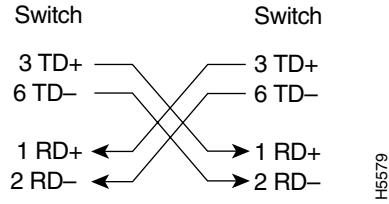
## Two Twisted-Pair Cable Pinouts

Figure B-7 and Figure B-8 show the schematics of two twisted-pair cables for 10/100 ports.

**Figure B-7 Two Twisted-Pair Straight-Through Cable Schematic**



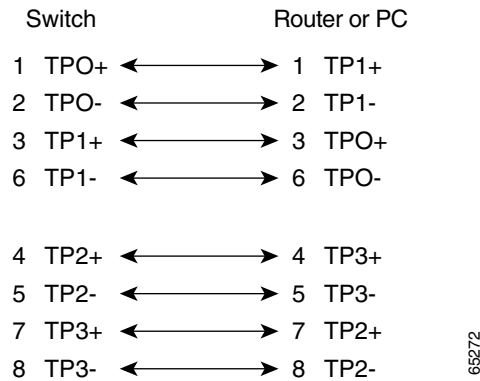
**Figure B-8 Two Twisted-Pair Crossover Cable Schematic**



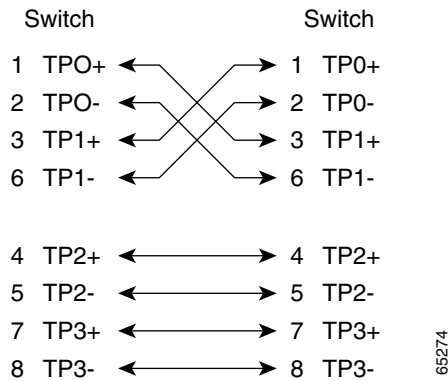
## Four Twisted-Pair Cable Pinouts for 10/100 Ports

Figure B-9 and Figure B-10 show the schematics of four twisted-pair cables for 10/100/1000 ports.

**Figure B-9 Four Twisted-Pair Straight-Through Cable Schematic for 10/100/1000 Ports**



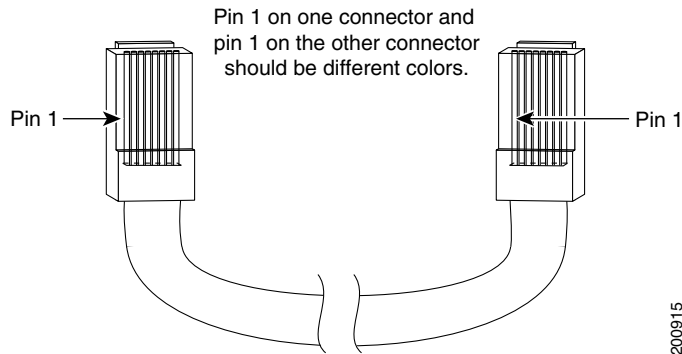
**Figure B-10 Four Twisted-Pair Crossover Cable Schematic for 10/100/1000 Ports**



## Identifying a Crossover Cable

To identify a crossover cable, compare the two modular ends of the cable. Hold the cable ends side-by-side, with the tab at the back. The wire connected to the pin on the outside of the left plug should be a different color from the wire connected to the pin on the inside of the right plug. (See [Figure B-11](#).)

**Figure B-11** Identifying a Crossover Cable



### Note

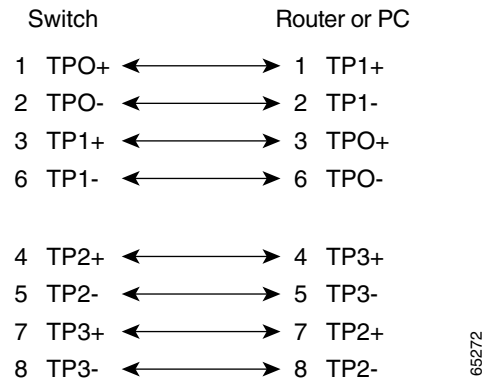
You can use the **mdix auto** interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (auto-MDIX) feature. When the auto-MDIX feature is enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100, 10/100/1000, or 1000BASE-T SFP module port on the switch, regardless of the type of device on the other end of the connection.

The auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(18)SE or later. For releases between Cisco IOS Release 12.1(14)EA1 and 12.2(18)SE, the auto-MDIX feature is disabled by default. For configuration information for this feature, see the switch software configuration guide or the switch command reference.

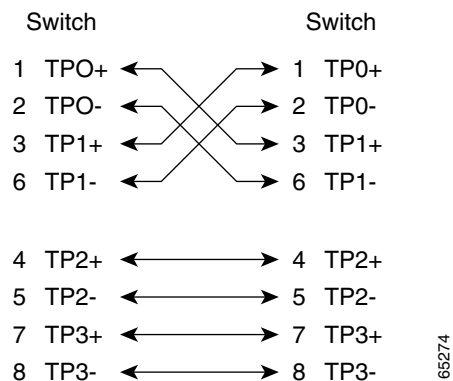
## Four Twisted-Pair Cable Pinouts for 1000BASE-T Ports

Figure B-12 and Figure B-13 show the schematics of four twisted-pair cables for 10/100/1000 ports on Catalyst 3750 switches.

**Figure B-12** Four Twisted-Pair Straight-Through Cable Schematic for 10/100/1000 Ports



**Figure B-13** Four Twisted-Pair Crossover Cable Schematics for 10/100/1000 and 1000BASE-T SFP Module Ports



## Crossover Cable and Adapter Pinouts

This section describes the adapter pinouts.

Table B-4 lists the pinouts for the console port, the RJ-45-to-DB-9 adapter cable, and the console device.

**Table B-4** Console Port Signaling Using a DB-9 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	DB-9 Pin	Signal
RTS	8	CTS
DTR	6	DSR

**Table B-4** Console Port Signaling Using a DB-9 Adapter (continued)

Switch Console Port (DTE)	RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	DB-9 Pin	Signal
TxD	2	RxD
GND	5	GND
GND	5	GND
RxD	3	TxD
DSR	4	DTR
CTS	7	RTS

Table B-5 lists the pinouts for the console port, RJ-45-to-DB-25 female DTE adapter, and the console device.

**Note**

The RJ-45-to-DB-25 female DTE adapter is not supplied with the switch. You can order a kit (part number ACS-DSBUASYN=) containing this adapter from Cisco.

**Table B-5** Console Port Signaling Using a DB-25 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-25 Terminal Adapter	Console Device
Signal	DB-25 Pin	Signal
RTS	5	CTS
DTR	6	DSR
TxD	3	RxD
GND	7	GND
GND	7	GND
RxD	2	TxD
DSR	20	DTR
CTS	4	RTS





# APPENDIX **C**

## Connecting to DC Power

---

This appendix describes how to make DC power connections to the Catalyst 3750G-12S-SD switch. See the [“Installing the Switch” section on page 2-11](#) for instructions on installing the switch.

## Connecting to DC Power

To connect the Catalyst 3750G-12S-SD switch to a DC-input power source, follow the steps in these sections:

- [Preparing for Installation, page C-2](#)
- [Grounding the Switch, page C-2](#)
- [Wiring the DC-Input Power Source, page C-4](#)

  
**Warning**

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**Ethernet cables must be shielded when used in a central office environment.** Statement 171

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**Warning**

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**This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.**  
Statement 1017

---

  
**Note**

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We recommend that you use 18 AWG copper wiring for Network Equipment Building Systems (NEBS) installation. This guideline follows the standard guidelines for DC power wiring in the Central Office.

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**Note**

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The grounding architecture of this product is DC-isolated (DC-I).

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## Preparing for Installation

Locate the ground lug and the two number-10-32 screws on the switch rear panel and the DC terminal block plug in the DC-switch accessory kit.

Obtain these necessary tools and equipment:

- Ratcheting torque screwdriver with a Phillips head that exerts up to 15 pound-force inches (lbf-in.) or 240 ounce-force inches (ozf-in.) of pressure
- Panduit crimping tool with optional controlled cycle mechanism (model CT-700, CT-720, CT-920, CT-920CH, CT-930, or CT-940CH)
- 6-gauge copper ground wire (insulated or noninsulated)
- Four leads of 18-gauge copper wire
- Wire-stripping tools for stripping 6- and 18-gauge wires

## Grounding the Switch



### Warning

**This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024



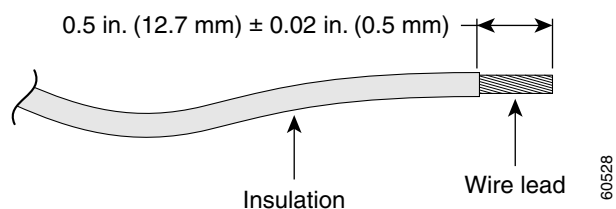
### Caution

To make sure that the equipment is reliably connected to earth ground, follow the grounding procedure instructions, and use a UL-listed lug suitable for number-6 AWG wire and two number-10-32 ground-lug screws.

To ground the switch to earth ground, follow these steps. Make sure to follow any grounding requirements at your site.

- Step 1** Locate and remove the ground lug and the two number-10-32 ground-lug screws from the rear panel of the switch. (See [Figure C-3](#) for location.) Use a standard Phillips screwdriver or a ratcheting torque screwdriver with a Phillips head. Set the screws and the ground lug aside.
- Step 2** If your ground wire is insulated, use a wire stripping tool to strip the 6-gauge ground wire to 0.5 inch (12.7 mm)  $\pm$  0.02 inch (0.5 mm), as shown in [Figure C-1](#).

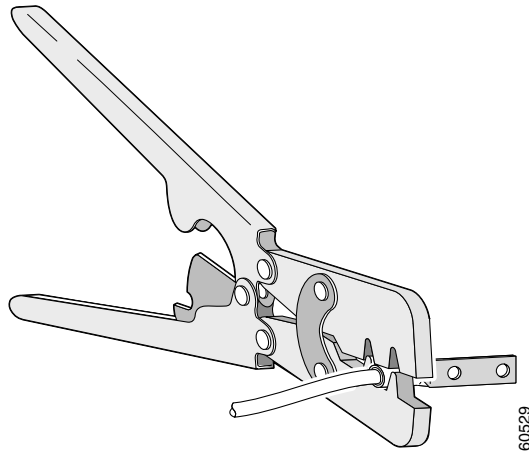
**Figure C-1** Stripping the Ground Wire



- Step 3** Slide the open end of the ground lug over the exposed area of the 6-gauge wire.

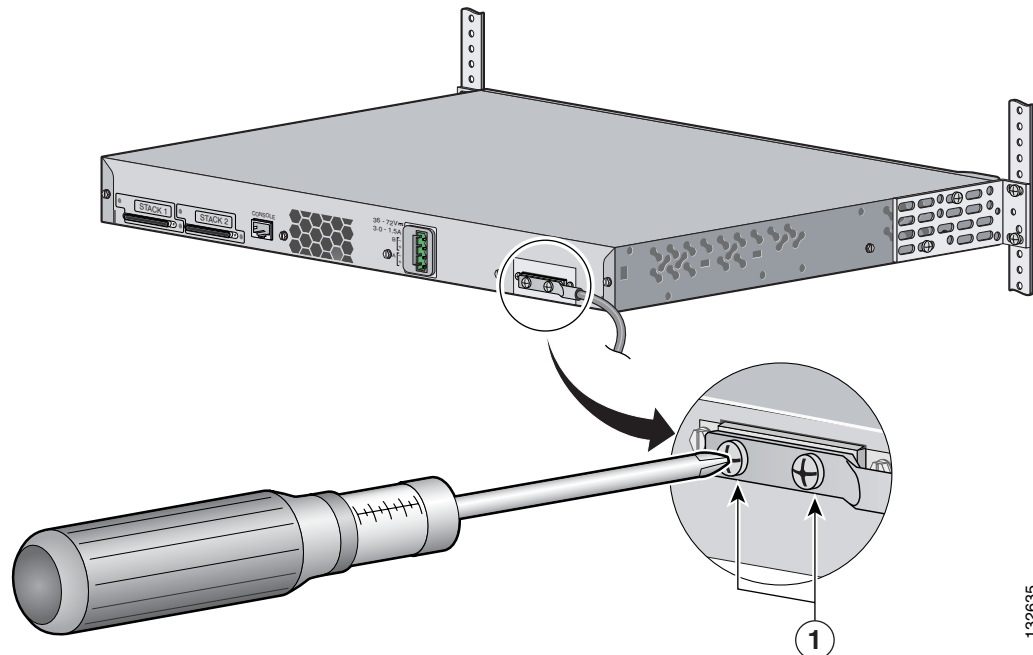
- Step 4** Using a Panduit crimping tool, crimp the ground lug to the 6-gauge wire, as shown in [Figure C-2](#).

**Figure C-2** Crimping the Ground Lug



- Step 5** Use the two number-10-32 screws to attach the ground lug and wire assembly to the switch rear panel ground connector, as shown in [Figure C-3](#).
- Step 6** Using a ratcheting torque screwdriver, torque each ground-lug screw to 15 lbf-in. (240 ozf-in.) Use either the front ground connector or the rear ground connector. You cannot use both at the same time.

**Figure C-3** Torquing Ground-Lug Screws



**1** Torque to 15 lbf-in.

## Wiring the DC-Input Power Source


**Warning**

**Before performing any of the following procedures, ensure that power is removed from the DC circuit.**  
Statement 1003


**Warning**

**Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**  
Statement 1030


**Caution**

You must connect the Catalyst 3750G-12S-SD switch only to a DC-input power source that has an input supply voltage from  $-36$  to  $-72$  VDC. If the supply voltage is not in this range, the switch might not operate properly or might be damaged.


**Caution**

The switch must be installed with 5 A-branch-circuit protection.

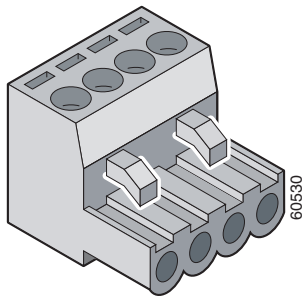

**Note**

This installation must comply with all applicable codes.

To wire the switch to a DC-input power source, follow these steps:

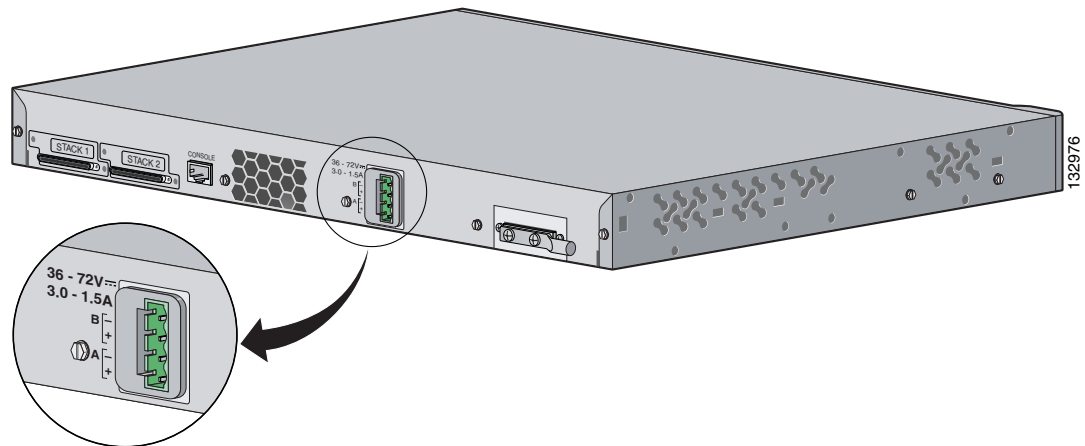
- Step 1** Apply tape to the circuit-breaker switch handle, and move the circuit-breaker handle to the off position.
- Step 2** Locate and remove the terminal block plug (see [Figure C-4](#)).

**Figure C-4** Terminal Block Plug



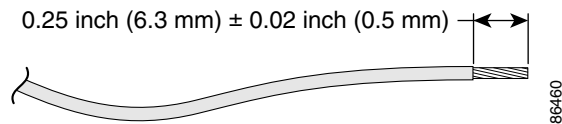
- Step 3** Identify the positive and negative feed positions for the terminal block connection. The wiring sequence is positive to positive and negative to negative for both the A and the B feed wires. The switch rear panel identifies the positive and negative positions for both the A and B feed wires, as shown in [Figure C-5](#).

**Figure C-5** Positive and Negative Positions on the Switch Rear Panel



- Step 4** Using a 18-gauge wire-stripping tool, strip each of the four wires coming from the DC-input power source to 0.27 inch (6.6 mm)  $\pm$  0.02 inch (0.5 mm), as shown in [Figure C-6](#). Do not strip more than 0.29 inch (7.4 mm) of insulation from the wire. Stripping more than the recommended amount of wire can leave exposed wire from the terminal block plug after installation.

**Figure C-6** Stripping the DC-Input Power Source Wire



86460

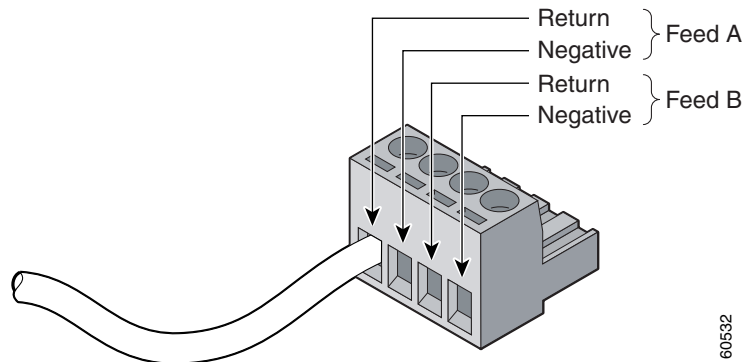
- Step 5** Insert the exposed wire of one of the four DC-input power source wires into the terminal block plug, as shown in [Figure C-7](#). Make sure that you cannot see any wire lead. Only wire *with insulation* should extend from the terminal block.

**Warning**

**An exposed wire lead from a DC-input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC-input power source wire extends from the terminal block plug.**

Statement 122

**Figure C-7** Inserting Wires in the Terminal Block Plug



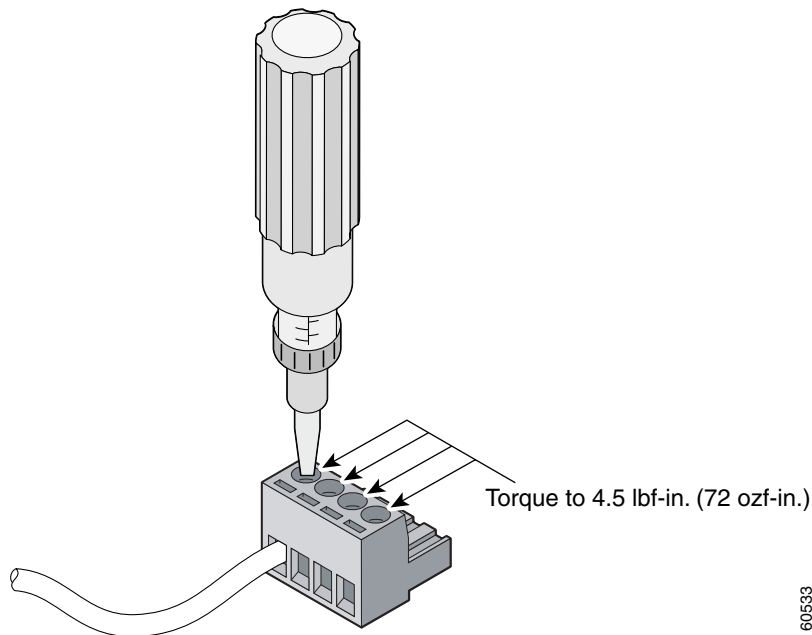
60532

- Step 6** Use a ratcheting torque screwdriver to torque the terminal block captive screw (above the installed wire lead) to 4.5 lbf-in. (72 ozf-in.), as shown in [Figure C-8](#).

**Caution**

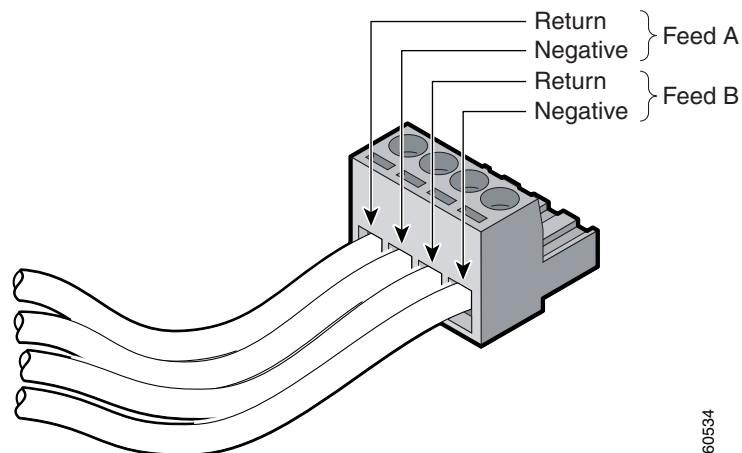
Do not overtorque the terminal-block captive screws. The recommended maximum torque is 4.5 lbf-in. (72 ozf-in.)

**Figure C-8** Torquing the Terminal-Block Captive Screws



- Step 7** Repeat Steps 4 and 5 for the remaining three DC-input power source wires. [Figure C-9](#) shows the completed wiring of a terminal block plug.

**Figure C-9** Completed Wiring of Terminal Block Plug

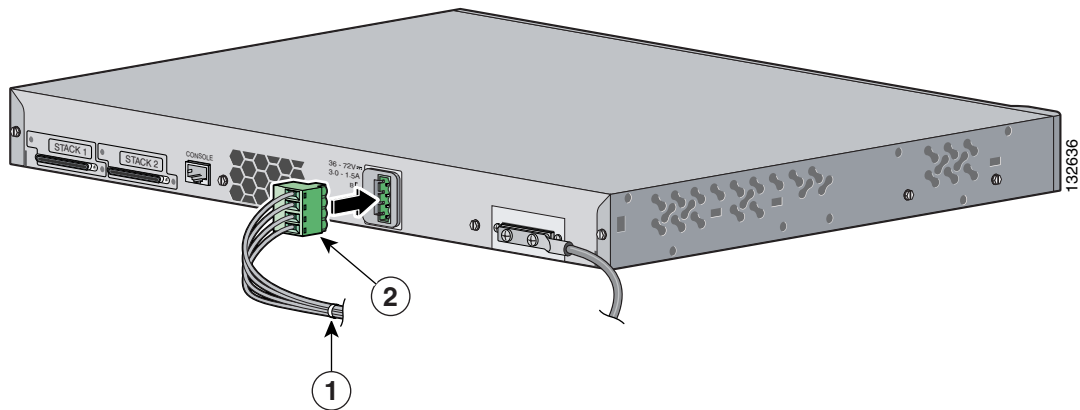


- Step 8** Insert the terminal block plug in the terminal block header on the switch rear panel, as shown in [Figure C-10](#).

**Caution**

Secure the wires coming in from the terminal block so that they cannot be disturbed by casual contact. For example, use tie wraps to secure the wires to the rack.

**Figure C-10** Inserting the Terminal Block in the Block Header



<b>1</b>	Tie wrap	<b>2</b>	Terminal block
----------	----------	----------	----------------

- Step 9** Remove the tape from the circuit-breaker switch handle, and move the circuit-breaker handle to the on position.

**Caution**

To comply with the intrabuilding lightning surge requirements, intrabuilding wiring must be shielded, and the shield for the wiring must be grounded at both ends.

**Caution**

The Catalyst 3750G-12S-SD switch is suitable only for intrabuilding or nonexposed wiring connections.





## APPENDIX **D**

# Configuring the Switch with the CLI-Based Setup Program

---

This appendix provides a CLI-based setup procedure for a standalone switch or a switch stack. Before connecting the switch to a power source, review the safety warnings in [Chapter 2, “Switch Installation.”](#)



### Note

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For detailed installation procedures on rack-mounting your switch, stacking your switches, or connecting to small form-factor pluggable (SFP) or XENPAK modules, see [Chapter 2, “Switch Installation.”](#) For product overview information, see [Chapter 1, “Product Overview.”](#)

---

These steps describe how to do a simple installation:

1. [Accessing the CLI, page D-2](#)
2. [Taking Out What You Need, page D-3](#)
3. [Stacking the Switches \(Optional\), page D-4](#)
4. [Connecting to the Console Port, page D-5](#)
5. [Starting the Terminal Emulation Software, page D-6](#)
6. [Connecting to a Power Source, page D-6](#)
7. [Entering the Initial Configuration Information, page D-7](#)

# Accessing the CLI

For an unconfigured switch, you can access the CLI through Express Setup or through the console port.

## Accessing the CLI Through Express Setup

**Note**

Express Setup is supported on switches running Cisco IOS Release 12.1(14)EA1 or later. If you are installing a new switch, see the Cisco IOS release label on the rear panel of the switch to determine the release.

For switches running releases earlier than Cisco IOS Release 12.1(14)EA1, go to the [“Taking Out What You Need” section on page D-3](#).

You can access the CLI on an unconfigured switch by placing the switch in Express Setup mode and then connecting an Ethernet port of the switch to the Ethernet port of your PC or workstation. To put the switch into Express Setup mode, follow the steps described in the *Catalyst 3750 Switch Getting Started Guide* for powering on the switch and using Express Setup.

After the switch is in Express Setup mode, use Telnet to connect to the switch by using the IP address *10.0.0.1*, and enter the **setup** user EXEC command. See these sections in this chapter to then configure the switch by using the CLI:

- [Entering the Initial Configuration Information, page D-7](#)
- [Completing the Setup Program, page D-7](#)

After you have entered the configuration information for the switch, save it to flash memory by using the **write memory** privileged EXEC command.

**Note**

While in Express Setup mode, the IP address 10.0.0.1 remains active on the switch until you enter the **write memory** command. You lose the Telnet connection after entering the **write memory** command.

For more information about using the CLI, see the command reference for this release.

## Accessing the CLI Through the Console Port

You can access the CLI on a configured or unconfigured switch by connecting the console port of the switch to the serial port on your PC or workstation and accessing the switch through a Telnet session.

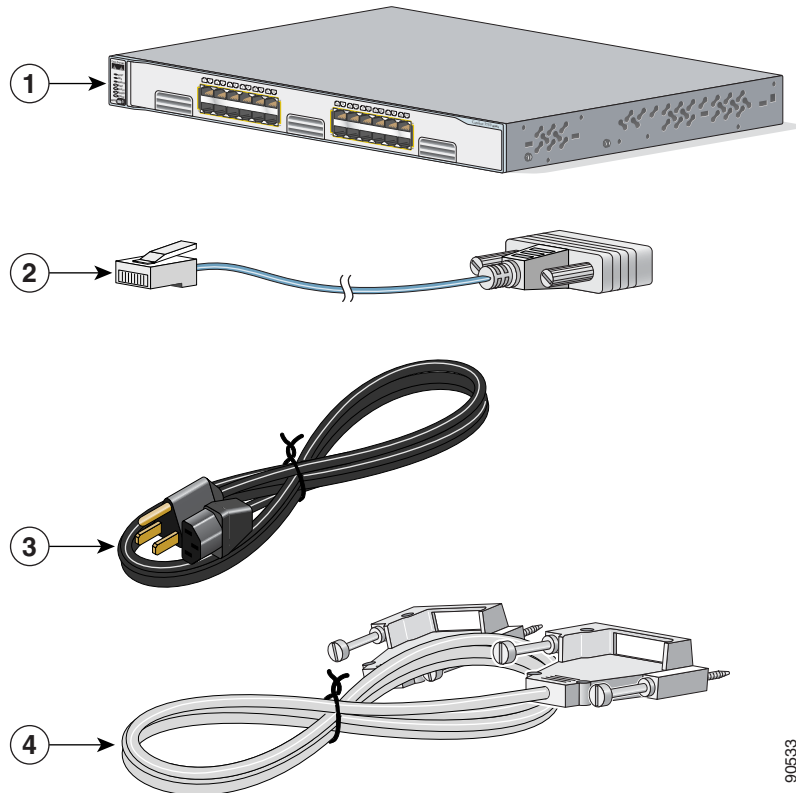
To access the switch through the console port, follow these steps:

- [“Taking Out What You Need” section on page D-3](#).
- [“Connecting to the Console Port” section on page D-5](#)
- [“Starting the Terminal Emulation Software” section on page D-6](#)
- [“Connecting to a Power Source” section on page D-6](#)
- [“Entering the Initial Configuration Information” section on page D-7](#)

# Taking Out What You Need

Remove the items shown in Figure D-1 from the shipping container:

**Figure D-1** The Catalyst 3750 Switch, Adapter Cable, AC Power Cord, and the StackWise Cable



1	Catalyst 3750 switch	3	AC power cord
2	RJ-45-to-DB-9 adapter cable	4	StackWise cable (optional)



**Note**

For a DC switch, you will have a DC power supply terminal block.

You need to provide the Category 5 or later straight-through cables to connect the switch ports to other Ethernet devices.

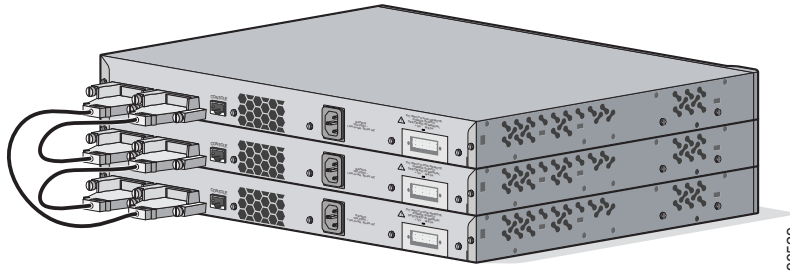
You can use the **mdix auto** interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (auto-MDIX) feature. When the auto-MDIX feature is enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100, 10/100/1000, or 1000BASE-T SFP module port on the switch, regardless of the type of device on the other end of the connection.

The auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(18)SE or later. For releases between Cisco IOS Release 12.1(14)EA1 and 12.2(18)SE, the auto-MDIX feature is disabled by default. For configuration information for this feature, see the switch software configuration guide or the switch command reference.

## Stacking the Switches (Optional)

You can stack up to nine switches by using the StackWise cables and ports to connect the switches (see [Figure D-2](#)). Read the “[Planning the Stack](#)” section on [page 2-7](#) before you stack your switches.

**Figure D-2** Stacking the Switches



**Step 1** Insert one end of the StackWise cable into the StackWise port at the back of a switch. See [Figure D-3](#).



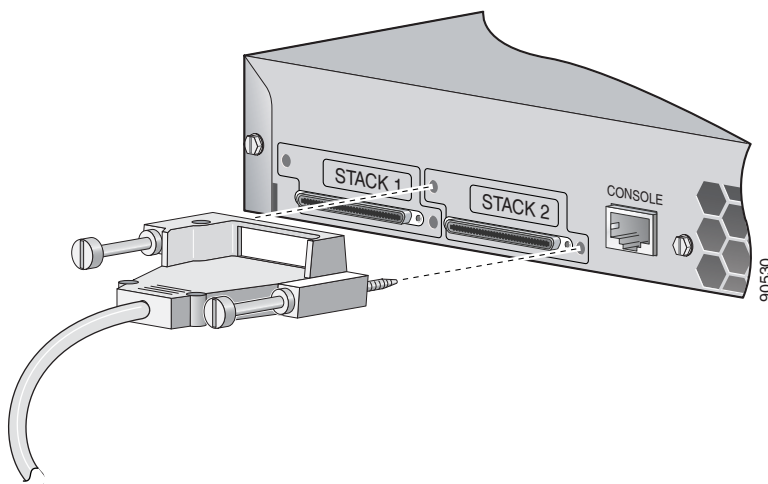
**Note** Always use a Cisco-approved StackWise cable to connect the switches.

**Step 2** Use the window in the StackWise cable to align the connector correctly. Secure the screws tightly.

**Step 3** Insert the other end of the cable into the connector of the other switch, and secure the screws tightly.

See the “[Connecting StackWise Cable to StackWise Ports](#)” section on [page 2-30](#) for detailed installation procedures on how to connect the switches in a stack.

**Figure D-3** Connecting the StackWise Cable to a StackWise Port



# Connecting to the Console Port

You can use the console port to perform the initial configuration. To connect the switch console port to a PC, use the supplied RJ-45-to-DB-9 adapter cable.

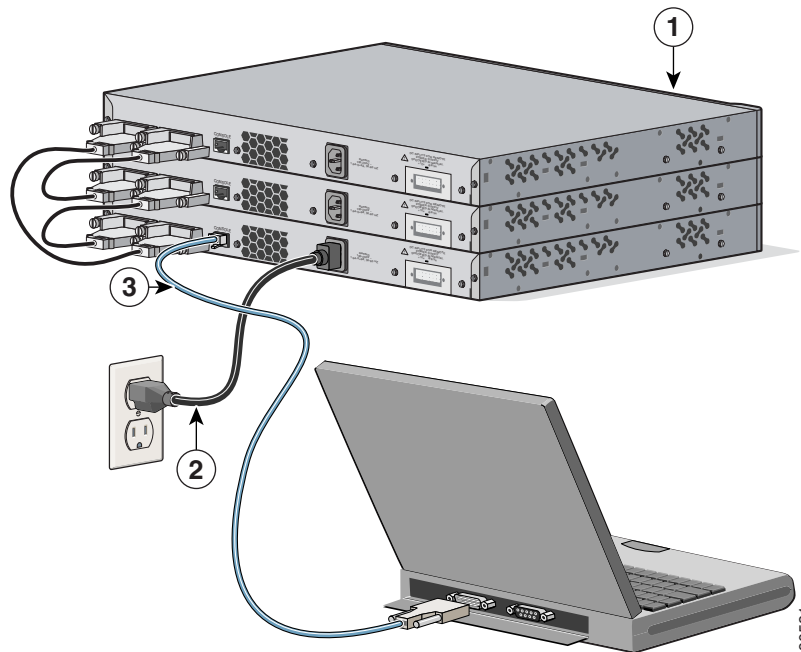

**Note**

If you have stacked your switches, connect to the console port of one of the switches in the stack. The initial configuration for the entire stack can be performed on any switch in the stack.

Follow these steps to connect the PC or terminal to the switch:

- Step 1** Using the supplied RJ-45-to-DB-9 adapter cable, insert the RJ-45 connector into the console port on the rear of a switch, as shown in [Figure D-4](#).
- Step 2** Attach the DB-9 female DTE of the adapter cable to a PC serial port, or attach an appropriate adapter to the terminal.

**Figure D-4** Connecting a Switch to a PC



<b>1</b>	Catalyst 3750 switches	<b>3</b>	RJ-45-to-DB-9 adapter cable
<b>2</b>	Power cord		

## Starting the Terminal Emulation Software

Before you power on the switch, start the terminal emulation session so that you can see the output display from the power-on self-test (POST).

The terminal-emulation software—frequently a PC application such as Hyperterminal or ProcommPlus—makes communication between the switch and your PC or terminal possible.

- 
- Step 1** Start the terminal-emulation program if you are using a PC or terminal.
- Step 2** Start a terminal-emulation session.
- Step 3** Configure the baud rate and character format of the PC or terminal to match these console port default characteristics:
- 9600 baud
  - 8 data bits
  - 1 stop bit
  - No parity
  - None (flow control)
- 

## Connecting to a Power Source

Follow these steps to connect to a power source:

- 
- Step 1** Connect one end of the supplied AC power cord to the power connector on a switch rear panel. See [Figure D-4](#).
- Step 2** Connect the other end of the power cable to a grounded AC outlet.
- Step 3** (Optional) If you have a stack, power on all the switches in the stack.



**Note** If you have stacked your switches, see the “[Powering Considerations](#)” section on [page 2-8](#) for more information.

---



**Note** If you are connecting the switch to a Cisco redundant power system (RPS), see the documentation that shipped with your RPS.

---

As the switch powers on, it begins the power-on self-test (POST), a series of tests that runs automatically to ensure that the switch functions properly. POST lasts approximately 1 minute.

When the switch begins POST, the System, the RPS, the Master, the Status, the Duplex, the Speed, and the Stack LEDs turn green. (On the Power over Ethernet [PoE] switches, the PoE LED also turns green as POST begins.) The System LED flashes green, and the other LEDs remain continuous green.

When POST completes successfully, the System LED remains green. The RPS LED remains green for some time and then returns to its operating status. The other LEDs turn off and return to their operating status.

**Note**

POST failures are usually fatal. Call Cisco Systems if your switch does not pass POST.

After you have powered all the switches in the stack, a switch is elected as the stack master. The master LED is green on the stack master switch.

If you started the terminal emulation program before you powered on your switch, the PC or terminal displays the bootloader sequence. You need to press **Enter** to display the setup program prompt.

## Entering the Initial Configuration Information

To set up the switch, you need to complete the setup program, which runs automatically after the switch is powered up. You must assign an IP address and other configuration information necessary for the switch to communicate with the local routers and the Internet. This information is also required if you plan to use the Network Assistant to configure and manage the switch.

### IP Settings

You will need this information from your network administrator before you complete the setup program:

- Switch IP address
- Subnet mask (IP netmask)
- Default gateway (router)
- Enable secret password
- Enable password
- Telnet password

### Completing the Setup Program

**Note**

If your switches are stacked and there are multiple console connections to individual switches in the stack, the initial setup dialog appears in the first console where the user presses **Enter**.

Follow these steps to complete the setup program and to create an initial configuration for the switch:

**Step 1** Enter **Yes** at the following two prompts.

```
Would you like to enter the initial configuration dialog? [yes/no]: yes
```

At any point you may enter a question mark '?' for help.

Use `ctrl-c` to abort configuration dialog at any prompt.

Default settings are in square brackets '[]'.

Basic management setup configures only enough connectivity for management of the system, extended setup will ask you to configure each interface on the system.

Would you like to enter basic management setup? [yes/no]: **yes**

**Step 2** Enter a host name for the switch, and press **Return**.

On a command switch, the host name is limited to 28 characters; on a member switch to 31 characters. Do not use *-n*, where *n* is a number, as the last character in a host name for any switch.

Enter host name [Switch]: *host\_name*

**Step 3** Enter an enable secret password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows spaces, but ignores leading spaces. The secret password is encrypted and the enable password is in plain text.

Enter enable secret: *secret\_password*

**Step 4** Enter an enable password, and press **Return**.

Enter enable password: *enable\_password*

**Step 5** Enter a virtual terminal (Telnet) password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, is case sensitive, allows spaces, but ignores leading spaces.

Enter virtual terminal password: *terminal-password*

**Step 6** (Optional) Configure Simple Network Management Protocol (SNMP) by responding to the prompts. You can also configure SNMP later through the CLI, the device manager, or the Network Assistant application. To configure SNMP later type **no**.

Configure SNMP Network Management? [no]: **no**

**Step 7** Enter the interface name (physical interface or VLAN name) of the interface that connects to the management network, and press **Return**. For this release, always use **vlan1** as that interface.

Enter interface name used to connect to the management network from the above interface summary: **vlan1**

**Step 8** Configure the interface by entering the switch IP address and subnet mask and pressing **Return**. The IP address and subnet masks shown below are examples.

```
Configuring interface vlan1:
Configure IP on this interface? [yes]: yes
IP address for this interface: 10.4.120.106
Subnet mask for this interface [255.0.0.0]: 255.0.0.0
```

**Step 9** Enter **Y** to configure the switch as the cluster command switch. Enter **N** to configure it as a member switch or as a standalone switch.

If you enter **N**, the switch appears as a candidate switch in the Network Assistant GUI. You can configure the switch as a command switch later through the CLI, the device manager, or the Network Assistant application. To configure it later, enter **no**.

Would you like to enable as a cluster command switch? [yes/no]: **no**



You have now completed the initial configuration of the switch and the switch displays its initial configuration. This is an example of output that appears:

The following configuration command script was created:

```
hostname switch1
enable secret 5 $1$U1q8$D1A/OiaEbl90WcBPd9cOn1
enable password enable_password
line vty 0 15
password terminal-password
no snmp-server
!
no ip routing

!
interface Vlan1
no shutdown
ip address 10.4.120.106 255.0.0.0
!
interface FastEthernet1/0/1
!
interface FastEthernet1/0/2

interface FastEthernet1/0/3
!
...<output abbreviated>
!

interface GigabitEthernet2/0/28
!
end
```

**Step 10** These choices are displayed:

- [0] Go to the IOS command prompt without saving this config.
- [1] Return back to the setup without saving this config.
- [2] Save this configuration to nvram and exit.

If you want to save the configuration and use it the next time the switch reboots, save it in nonvolatile RAM (NVRAM) by selecting option 2.

Enter your selection [2]:2

Make your selection, and press **Return**.

---

After you complete the setup program, the switch can run the default configuration that you created. If you want to change this configuration or want to perform other management tasks, use one of these tools:

- Command-line interface (CLI)
- Network Assistant (for one or more switches)

To use the CLI, enter commands at the *Switch>* prompt through the console port by using a terminal program or through the network by using telnet. For configuration information, see the switch software configuration guide or the switch command reference.

To use the Network Assistant, see the *Getting Started with Cisco Network Assistant* guide on Cisco.com.

■ Entering the Initial Configuration Information



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